

# NATURAL RESOURCES BASELINE SUMMARY REPORT

## CLARK, LINCOLN, AND WHITE PINE COUNTIES GROUNDWATER DEVELOPMENT EIS

ENSR Corporation  
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## 1.0 Introduction

As part of the process of preparing an Environmental Impact Statement (EIS) for the Clark, Lincoln, and White Pine counties Groundwater Development (GWD) Project, this baseline summary report is being prepared for biological resources and soils. The Bureau of Land Management (BLM) National Environmental Policy Act (NEPA) Handbook (H-1790-1) requires that all impact analyses address certain Critical Elements of the Human Environment. Some of these Critical Elements are part of biological resources including invasive non-native and noxious weeds, migratory birds, threatened, endangered and sensitive species, and wetlands and riparian zones. Wild horses are not part of this report, but they are included in the GWD Project EIS. Other non-critical elements involving natural resources such as soils, vegetation, wildlife, and aquatic species also are included in this report and the GWD Project EIS. The process for gathering baseline data for biological resources and soils is described in this report.

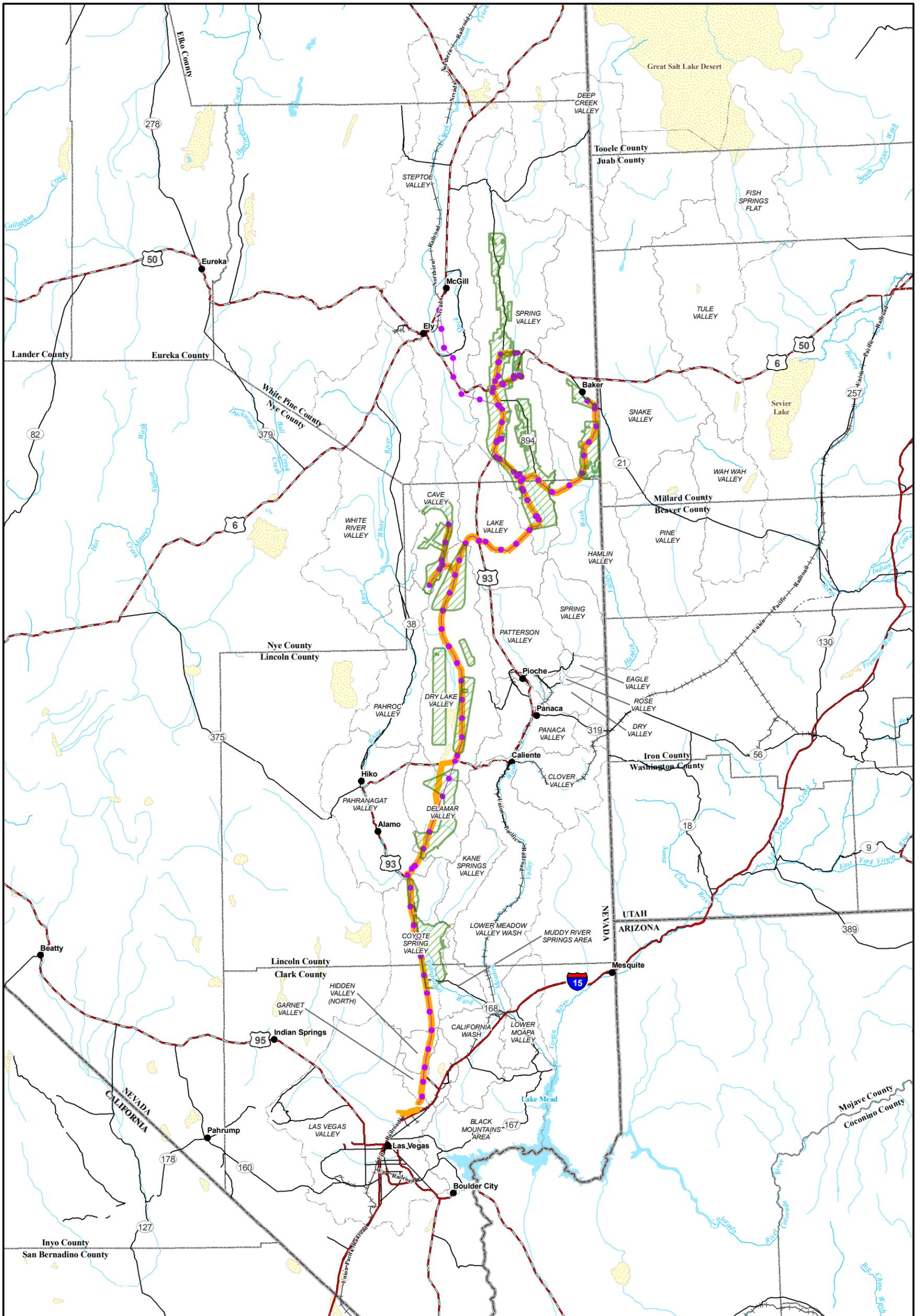
The Natural Resource Group (NRG) includes representatives from the BLM in Nevada and Utah, U.S. Fish and Wildlife Service (USFWS) in Nevada and Utah, Nevada Department of Wildlife (NDOW), Utah Division of Wildlife Resources (UDWR), Southern Nevada Water Authority (SNWA), ENSR (BLM's EIS Contractor), and ENTRIX (subcontractor to ENSR). The BLM is directing the activities of the NRG. The purpose of this group is to: 1) compile and evaluate baseline data on biological resources (vegetation, wildlife, and aquatic species) and soils; 2) prepare a summary of the data; and 3) assist the BLM and ENSR in developing the impact analysis approach for the EIS and make recommendations for monitoring and mitigation.

This report provides an overview of biological resources and soils information that will be used in Chapter 3.0 (Affected Environment) of the GWD Project EIS. The report is organized into four resource topics including Vegetation (Chapter 2.0), Terrestrial Wildlife (Chapter 3.0), Aquatic Resources (Chapter 4.0), and Soils (Chapter 5.0). Each of the biological resource sections includes species and their habitats. Within each resource discussion, information is provided on species or groups addressed, affected environment data sources, and species occurrence. An outline of Chapter 3.0 of the GWD Project EIS also is provided in Chapter 6.0 of this report, as well as key literature sources (Chapter 7.0). Baseline information on water resources including surface water quality and quantity will be addressed in the water resources section in Chapter 3.0 of the EIS. Relationships between these water resource characteristics and aquatic habitat will be noted in the EIS.

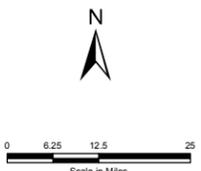
The NRG has proposed two project study areas for biological resources and soils: rights-of way (ROWs)/groundwater exploratory areas and the region of study. These project study areas are being defined prior to results of the groundwater model, and therefore, may be modified when the water resources analysis is available. The ROWs/groundwater exploratory areas identify areas where direct impacts may occur (i.e., valleys where the project would be constructed) (**Map 1-1**). **Map 1-2** shows the groundwater basins evaluated for the potential indirect effects of groundwater pumping (i.e., valleys where the project would be constructed as well as adjacent basins defined by groundwater flow systems). This portion of the study area is defined as the region of study. It should be clarified that **Map 1-2** provides the study area for characterizing existing resources.

The study area for biological resources and soils for the proposed GWD Project includes portions of White Pine, Lincoln, Clark, and Nye counties in Nevada, as well as Tooele, Juab, Millard, Beaver, and Iron counties in Utah. Details on the two project study areas for natural resources are provided below:

- ROW/Groundwater Exploratory Area – The ROW includes pipeline and power line corridors, as well as areas for other ancillary facilities such as pump stations, regulating tanks, buried storage reservoir, and the water treatment facility. The groundwater exploratory area includes the areas in the

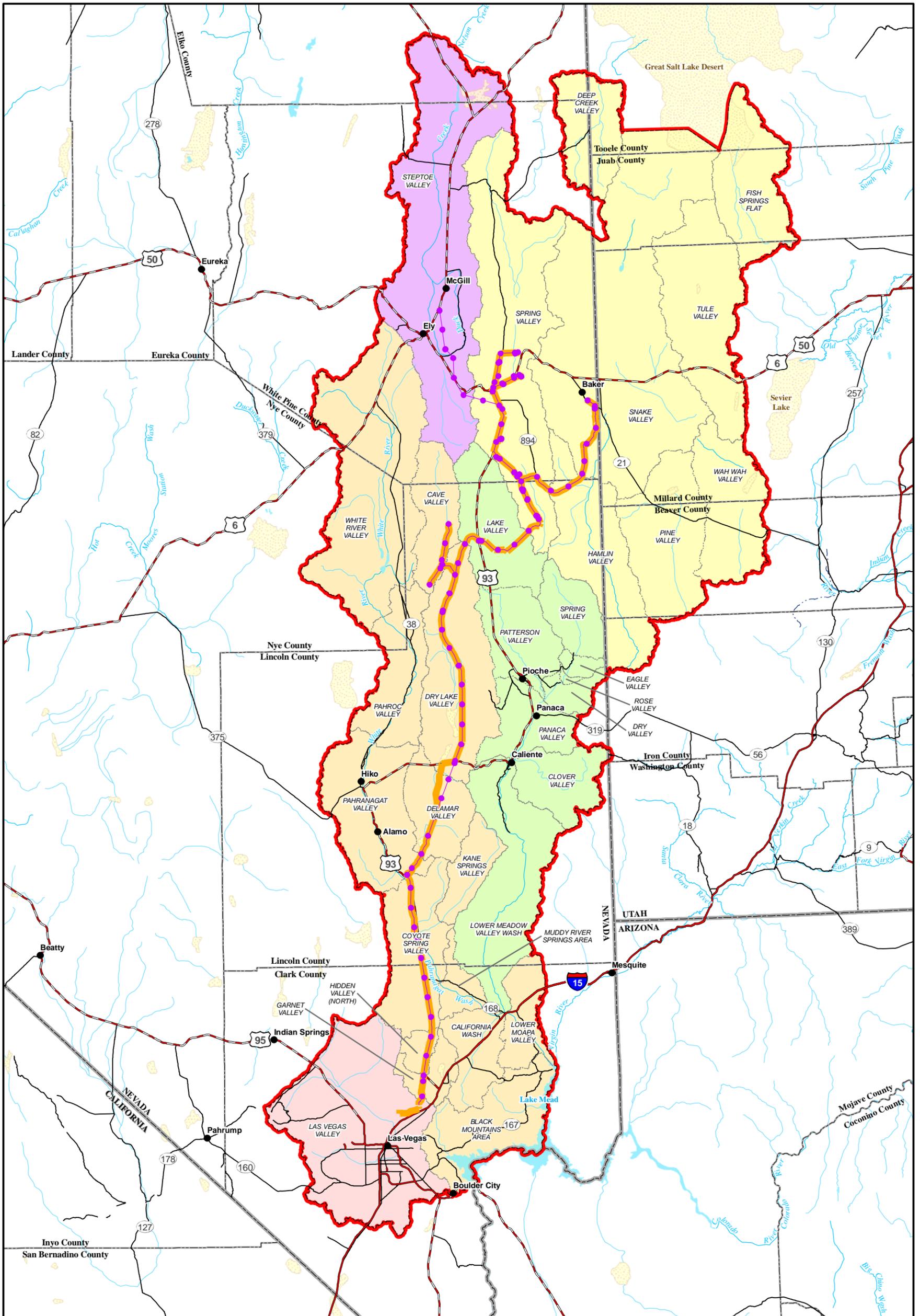


- City or Town
- Interstate Highway
- State Highway
- Major Road
- +—+ Railroad
- State Boundary
- County Boundary
- ▨ Exploratory Area
- Proposed Power Line
- Proposed Pipeline
- ▭ Hydrographic Basins
- River or Creek
- Intermittent Stream
- Canal or Aqueduct
- Lake or Reservoir
- Dry Lake

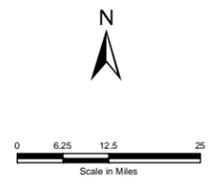


**Proposed Clark, Lincoln, and White Pine Counties Groundwater Development Project**

**Map 1-1**  
**ROW / Groundwater Exploratory Area**



- City or Town
- Hydrographic Basins
- Flow System
- Goshute Valley
- Las Vegas Wash
- Meadow Valley Wash
- Salt Lake Desert
- White River
- Proposed Power Line
- Proposed Pipeline
- Interstate Highway
- State Highway
- Major Road
- Hydrographic Basins
- State Boundary
- County Boundary
- River or Creek
- Intermittent Stream
- Canal or Aqueduct
- Lake or Reservoir
- Dry Lake



**Proposed Clark, Lincoln, and White Pine Counties Groundwater Development Project**

**Map 1-2**  
**Flow System Study Area**

groundwater pumping basins where future groundwater production wells and associated facilities are anticipated to be located. The diversion points that have been approved by the Nevada State Engineer include 15 in Spring Valley and 2 each in Cave, Dry Lake, and Delamar valleys. Additional groundwater production wells will be required in these basins. The final location of diversion points will be based on water yield from exploration wells and approval by the Nevada State Engineer. Decisions on diversion points in Snake Valley have not been made at this time. A generalized area defined by the boundaries of the exploratory areas is used for characterization of natural resources within the groundwater exploratory areas (**Map 1-1**).

- Region of Study – This area consists of the 6 hydrologic basins proposed for groundwater development, along with 27 other hydrologic basins which collectively encompass all or a portion of 5 flow systems (Las Vegas Wash Flow System, White River Flow System, Meadow Valley Wash Flow System, Goshute Valley Flow System, and Salt Lake Desert Flow System). Since results of groundwater modeling are not yet available, the region of study is tentatively identified to include all of the six groundwater development basins as well as adjacent hydrologic basins. The inclusion of these adjacent hydrologic basins is based on known connections between regional groundwater flow systems. This region of study may be revised after the results of the water resources analysis is available.

The Draft Natural Resources Baseline Summary Report was provided to the cooperating agencies for review and comment. The NRG used the comments and information provided to finalize this report. The information also was used to update and revise appropriate sections in Chapter 3.0 of the EIS. Responses to comments on the draft of this report by cooperating agencies are provided in Appendix A. Work on Chapter 4.0 of the GWD EIS will not begin until the results of the groundwater model are available; therefore, this report does not describe Chapter 4.0 (impact analysis and monitoring and mitigation). This report is considered an internal, confidential document. All final documents will be available to the public upon completion of the Draft GWD Project EIS.

## 2.0 Vegetation

### 2.1 Overview

The vegetation section provides information on the types of vegetation communities, noxious and invasive weeds, and special status plant species that occur within the project study area. Vegetation will be characterized at two levels (i.e., the study areas described in Chapter 1.0). The first level will characterize vegetation resources that may be directly impacted by construction activities within the ROW/groundwater exploratory study area, and includes discussions on vegetation communities (e.g., upland, riparian, and wetland communities), noxious and invasive weeds, and special status plant species. The second level will characterize vegetation resources that may be indirectly impacted by groundwater drawdown within the region of study. Information to be gathered for the region of study will focus on water-dependent vegetation communities or species (e.g., riparian, wetlands, and phreatophytes).

Based on results from the scoping process and feedback from the BLM Interdisciplinary Team and Cooperating Agencies, the following issues and concerns were identified for vegetation:

- Potential effects of groundwater drawdown on the vigor and extent of riparian and wetland plant communities, as well as phreatophyte communities of the valley floors;
- Potential alterations in water-dependent communities and species composition;
- Potential alterations in natural fire regimes because of reduced water availability;
- Mitigation and monitoring measures to be implemented during and after construction (e.g., special status species monitoring and noxious weed mitigation);
- Potential effects of pipeline construction on riparian vegetation; and
- Potential for invasive species introduction and spread in the project study area due to construction within ROWs and the groundwater exploratory areas.

#### Affected Environment Information

The baseline section of the EIS (Chapter 3.0) will characterize vegetation resources in terms of the following topics: types of plant communities, riparian and wetland vegetation, noxious and invasive weeds, and special status plant species. A brief description of the vegetation resource information is provided below along with literature sources that will be used in the EIS.

#### 2.1.1 Upland Vegetation Communities

Vegetation communities are defined using classifications described in the Southwest Regional GAP (SWReGAP) Analysis Project – land cover descriptions (U.S. Geological Survey [USGS] 2005). Data that will be used to characterize the vegetation communities include the following:

- A SWReGAP shapefile to identify locations of the vegetation community types (USGS 2004);
- SWReGAP classification descriptions (USGS 2005); and
- Data collected on vegetation community types during project-specific surveys in the Mojave and Great Basin Desert portions of the ROWs and exploratory areas (Jones & Stokes 2005; Wildland International 2007).

### 2.1.2 Riparian, Wetland, and Phreatophytic Plant Communities

Riparian, phreatophytic, and wetland communities are defined based on applicable BLM and regulatory purposes. Generally, wetlands, including wet meadows, are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface (Cowardin et al. 1979). The wetland definition related to the Clean Water Act also will be referenced. Riparian areas represent a wetland transition between permanently saturated wetlands and upland areas. Phreatophytes are deep-rooted plants that may obtain water from a permanent surface or groundwater supply. Greasewood (*Sarcobatus vermiculatus*) generally is considered an obligate phreatophyte over most of its range (roots can reach the water table at depths in excess of 50 feet). Rubber rabbitbrush (*Chrysothamnus nauseosus*) generally is considered to be a facultative phreatophyte because it can grow in upland sites as well as sites underlain by a shallow water table. These types of plants generally grow on the flatter portions of the valley floor and include scrub, grassland, and playa communities. Common phreatophytic classifications include Inter-Mountain Basins Playa, North American Warm Desert Playa, and Inter-Mountain Basins Greasewood Flat. Swamp cedar (*Juniperus scopulorum*), representing a globally unique juniper habitat type, is included in the phreatophyte vegetation group because of this habitat type occurrence in temporarily flooded areas and in areas with a near surface water fall in Spring Valley.

- Data collected on vegetation community types during project-specific surveys in the Mojave and Great Basin Desert portions of the ROWs/groundwater exploratory areas (Jones & Stokes 2005; Wildland International 2007);
- A shapefile and methods report based on classification of a Normalized Difference Vegetation Index grid created from Landsat7 imagery to determine phreatophyte community boundaries (SNWA 2007a; SNWA no date);
- Vegetation data obtained at springs during project-specific surveys (BIO-WEST, Inc. 2007; Sada 2007);
- National Wetlands Inventory shapefile, which identifies locations of wetland and riparian vegetation (USFWS 2007a);
- A report on swamp cedar populations in Spring Valley (Charlet 2006); and
- A shapefile and methods report of mapped evapotranspiration units in the Basin and Range Carbonate-Rock Aquifer System to identify phreatophyte community boundaries (Smith et al. 2007; USGS 2007).

### 2.1.3 Noxious and Invasive Weeds

Noxious and invasive weeds typically are exotic species that proliferate with such vigor that native species and even entire communities can become displaced. A "noxious weed" is defined as any plant officially designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife, or property (Sheley and Petroff 1999). A noxious weed also is commonly defined as a plant that grows out of place (i.e., a rose can be a weed in a wheat field) and is "competitive, persistent, and pernicious" (James et al. 1991 as cited in BLM 2007a). Officially designated noxious weeds are frequently those that are pest plants in agricultural or grazing lands. The BLM considers plants invasive if they have been introduced into an environment where they did not evolve. As a result, they usually have no natural enemies to limit their reproduction and spread (Westbrooks 1998 as cited in BLM 2007a). An invasive species is defined as a species that is: 1) non-native (or alien) to the ecosystem under consideration; and 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health (National Invasive Species Council 2001). Some native species are also considered invasive under certain habitat conditions. Invasive species such as cattail (*Typha* spp.) and common reed (*Phragmites australis*) are addressed as part of wetland communities. The types of information that will be used to characterize noxious and invasive weeds include the following:

- Data from project-specific surveys conducted along the ROW alignments (Jones & Stokes 2005; Tri-County Weed Control Project 2007; Wildland International 2007);
- A map of invasive annual grasses based on Landsat imagery (Peterson 2006);
- BLM's weed survey data that incorporates weed infestations for all of the Ely District (BLM 2007a);
- BLM's national list of invasive weed species of concern (BLM 2006);
- The State of Nevada's list of noxious weeds (Nevada Department of Agriculture 2007); and
- Life history information (Agriculture and Natural Resources Database 2007; California Department of Food and Agriculture 2007).

#### 2.1.4 Special Status Plant Species

Special status plant species are defined as those species with federal or state listing or those identified as special status with the BLM or U.S. Forest Service (USFS). The types of information that will be used to identify the occurrence of special status plant species within the project study area include the following:

- Status designations/listing status (Nevada Natural Heritage Program [NNHP] 2005a, 2005b; UDWR 2007a);
- Species descriptions and habitat information (Franklin 2005; Morefield 2001; NatureServe 2007; NNHP 2001; UDWR 2007a);
- Species occurrence/distribution information (NNHP 2006a, 2006b; Utah Natural Heritage Program [UNHP] 2005); and
- Data collected on special status plant species during project-specific surveys in the Mojave and Great Basin Desert portions of the ROWs/exploratory areas (Jones & Stokes 2005; Wildland International 2007).

## 2.2 Data Gaps

No specific additional data gaps were identified, pending receipt of the groundwater drawdown estimates from modeling. The USFWS requests additional discussions in the EIS for how impacts will be minimized for those species in and near areas proposed for surface disturbance (e.g. Parish phacelia, Blaine's fishhook cactus, Meadow Valley sandwort). Tribal-sensitive plant species represent a potential data gap. Letters have been sent to the tribes requesting a list of tribal-sensitive species that may occur in the region of study.

## 2.3 Project Area Occurrence

Vegetation community and special status species occurrences will be identified in the ROWs/groundwater exploratory areas and in the region of study. **Tables 2-1** and **2-2** summarizes the occurrences of vegetation community types, and highlights the riparian, wetland, and phreatophyte communities in the ROWs/groundwater exploratory areas. Special status plant species occurrences in the study areas are summarized in **Tables 2-3** and **2-4**. **Table 2-5** identifies noxious weed occurrences within the ROWs/groundwater exploratory area. This table will be updated for the EIS to include Tri-County Weed Control Project (2007) data. Invasive weed species that are widely distributed within the ROW/groundwater exploratory areas include red brome (*Bromus rubens*), cheatgrass (*Bromus tectorum*), and halogeton (*Halogeton glomeratus*). The occurrence of phreatophyte vegetation within the region of study is shown in **Map 2-1**.

**Table 2-1 Vegetation Cover Types (Acres) for Pipeline and Power Line ROW and Ancillary Facilities**

Cover Type	Alt A-C	Segment Alternatives			
		Alt E North Lake Valley	Alt G North Delmar	Alt H Coyote Spring	Alt D Humboldt- Toiyabe Power Line
Barren Lands, Non-specific	1	0	0	0	0
Great Basin Pinyon-Juniper Woodland	251	0	0	0	66
Great Basin Xeric Mixed Sagebrush Shrubland	1,368	72	6	0	35
Inter-Mountain Basins Big Sagebrush Shrubland	3,771	609	197	0	0
Inter-Mountain Basins Big Sagebrush Steppe	7	5	0	0	0
Inter-Mountain Basins Cliff and Canyon	1	0	0	0	0
Inter-Mountain Basins Greasewood Flat	154	0	0	0	0
Inter-Mountain Basins Mixed Salt Desert Scrub	2,927	81	26	0	0
Inter-Mountain Basins Montane Sagebrush Steppe	18	0	0	0	23
Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland	0	0	0	0	1
Inter-Mountain Basins Playa	14	0	0	0	0
Inter-Mountain Basins Semi-Desert Grassland	5	2	0	0	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	868	0	125	0	1
Invasive Annual and Biennial Forbland	11	1	0	0	0
Invasive Annual Grassland	2	0	0	0	0
Invasive Perennial Grassland	19	227	0	0	0
Mojave Mid-Elevation Mixed Desert Scrub	279	0	39	0	0
North American Warm Desert Bedrock Cliff and Outcrop	14	0	0	0	0
North American Warm Desert Playa	16	0	0	7	0
North American Warm Desert Wash	14	0	0	11	0
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	2,510	0	0	486	0
Sonora-Mojave Mixed Salt Desert Scrub	24	0	0	0	0
<b>Total</b>	<b>12,275</b>	<b>997</b>	<b>393</b>	<b>504</b>	<b>126</b>

**Table 2-2 ReGAP Land Cover Types (Acres) Within the Proposed Groundwater Exploration Areas**

	Hydrologic Basin					
	Spring	Snake	Cave	Dry Lake	Delamar	Coyote Springs
Agriculture	138	516	0	0	0	0
Barren Lands, Non-specific	30	0	0	5	0	0
Developed, Open Space - Low Intensity	0	6	0	0	0	0
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	62	41	0	13	0	0
Great Basin Pinyon-Juniper Woodland	22,116	4,372	10,156	17,945	93	0
Great Basin Xeric Mixed Sagebrush Shrubland	56,440	12,550	3,661	9,944	2,513	0
Inter-Mountain Basins Big Sagebrush Shrubland	114,520	6,510	22,007	59,836	11,592	0
Inter-Mountain Basins Big Sagebrush Steppe	14	0	65	24	0	0
Inter-Mountain Basins Cliff and Canyon	44	51	67	46	95	0
Inter-Mountain Basins Greasewood Flat	6,206	3,918	5,231	509	65	0
Inter-Mountain Basins Mixed Salt Desert Scrub	54,758	15,304	2,846	50,150	12,119	0
Inter-Mountain Basins Montane Sagebrush Steppe	35	0	7	64	0	0
Inter-Mountain Basins Playa	729	0	85	864	2,951	0
Inter-Mountain Basins Semi-Desert Grassland	387	538	2	563	605	0
Inter-Mountain Basins Semi-Desert Shrub Steppe	37	5,999	0	15,531	17,261	143
Inter-Mountain Basins Wash	7	0	0	0	0	0
Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland	0	17	0	0	0	0
Rocky Mountain Bigtooth Maple Ravine Woodland	0	9	0	0	0	0
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	0	38	0	0	0	0
Southern Rocky Mountain Montane-Subalpine Grassland	0	2	0	0	0	0
Invasive Annual and Biennial Forbland	31	0	0	144	0	0
Invasive Annual Grassland	39	0	0	10	58	0
Invasive Perennial Grassland	308	322	887	0	0	0
Invasive Annual and Biennial Forbland	0	162	3	0	58	0
Invasive Southwest Riparian Woodland and Shrubland	0	0	0	0	0	40
North American Arid West Emergent Marsh	117	1	0	0	1	0
Mojave Mid-Elevation Mixed Desert Scrub	0	0	0	1,003	14,902	337
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	0	0	0	11	290	68,995
Sonora-Mojave Mixed Salt Desert Scrub	0	0	0	0	0	1,024
North American Warm Desert Bedrock Cliff and Outcrop	0	0	0	0	0	486
North American Warm Desert Pavement	0	0	0	0	0	7
North American Warm Desert Playa	0	0	0	0	0	121
North American Warm Desert Wash	0	0	0	0	0	716
<b>Total</b>	<b>256,017</b>	<b>50,357</b>	<b>45,017</b>	<b>156,659</b>	<b>62,604</b>	<b>71,870</b>

**Table 2-3 Occurrence of USFWS Listed and BLM Sensitive Plant Species on or near Land Required for the GWD Project Pipelines and Ancillary Facilities**

<b>Species (Common and Scientific Name)</b>	<b>Status</b>	<b>Occurrence (Hydrologic Basin, Mileposts, Abundance)</b>	<b>Project Component</b>	<b>Occurrence within area proposed for surface disturbance?</b>
Blaine's fishhook cactus ( <i>Sclerocactus blainei</i> )	P, BLM Sensitive	Dry Lake Valley - Two separate small populations.	Mainline Pipeline/Power line ROW	Yes
Eastwood milkweed ( <i>Asclepias eastwoodiana</i> )	BLM Sensitive	Dry Lake Valley - Three populations totaling 1,801 individuals. Habitat: Outwash light-colored sands.	Mainline Pipeline/Power line ROW	Yes
Las Vegas buckwheat ( <i>Eriogonum corymbosum var. nilesii</i> )	USFWS Candidate	Two sites near in Coyote Springs Valley near Highway 93 (Mrowka 2008). This species was not encountered within the project survey corridor (Jones and Stokes 2005; Wildland International 2007).	Mainline and Transmission line ROWs	No
Long-calyx egg milkvetch ( <i>Astragalus oophorus lonchocalyx</i> )	BLM Sensitive	Spring Valley - One population of five plants.	Mainline Pipeline/Power line ROW	Yes
Meadow Valley sandwort ( <i>Arenaria stenomeris</i> )	No federal or state protection status	The entire known range and distribution of this species lies near the Alternative H utility corridor	Proposed Pipeline and Transmission Line ROWs (in Clark County).	No
Nachlinger catchfly ( <i>Silene nachlingderae</i> )	BLM Sensitive	Schell Creek Range - One population of 10 plants approximately 2,000 feet south of the alignment. Habitat: dry crevices of talus, rocky soils, or cliffs in the Inter-mountain Mountain Mahogany Woodland and Great Basin Pinyon Juniper Woodland.	Alternative D (Humboldt-Toiyabe Power Line Route – Ely to Spring Valley)	No
Welsh cryptantha ( <i>Cryptantha welshii</i> )	BLM Sensitive	Spring Valley - Six populations consisting of 296 plants. Three populations of 46 plants in vicinity of Spring Valley Lateral. Six populations of over 5,000 individuals within Snake Lateral Pipeline ROW. Habitat: Great Basin Xeric Mixed Sagebrush Shrubland and Inter-Mountain Big Sagebrush Shrubland on light-colored sandy soils (dominant species: black sagebrush, pygmy sagebrush, and Green's rabbitbrush).	Spring Valley Lateral Pipeline; Snake Valley Lateral Pipeline	Yes
		Schell Creek Range - Four populations of over 1,300 individuals.	Proposed Power line Route – Ely to Spring Valley	Yes
White bearpoppy ( <i>Arctomecon merriami</i> )	BLM Sensitive	Coyote Spring Valley - Fifteen locations where 350 individual plants were observed. Habitat: Saltbush scrub and Nevada Jointfir on gypsiferous soils.	Mainline Pipeline/Power line ROW	No

P = petitioned for federal listing.

**Table 2-4 Occurrence of USFWS Listed and BLM Sensitive Plant Species within the Groundwater Exploratory Areas and Groundwater Dependent Species in the Regions of Study**

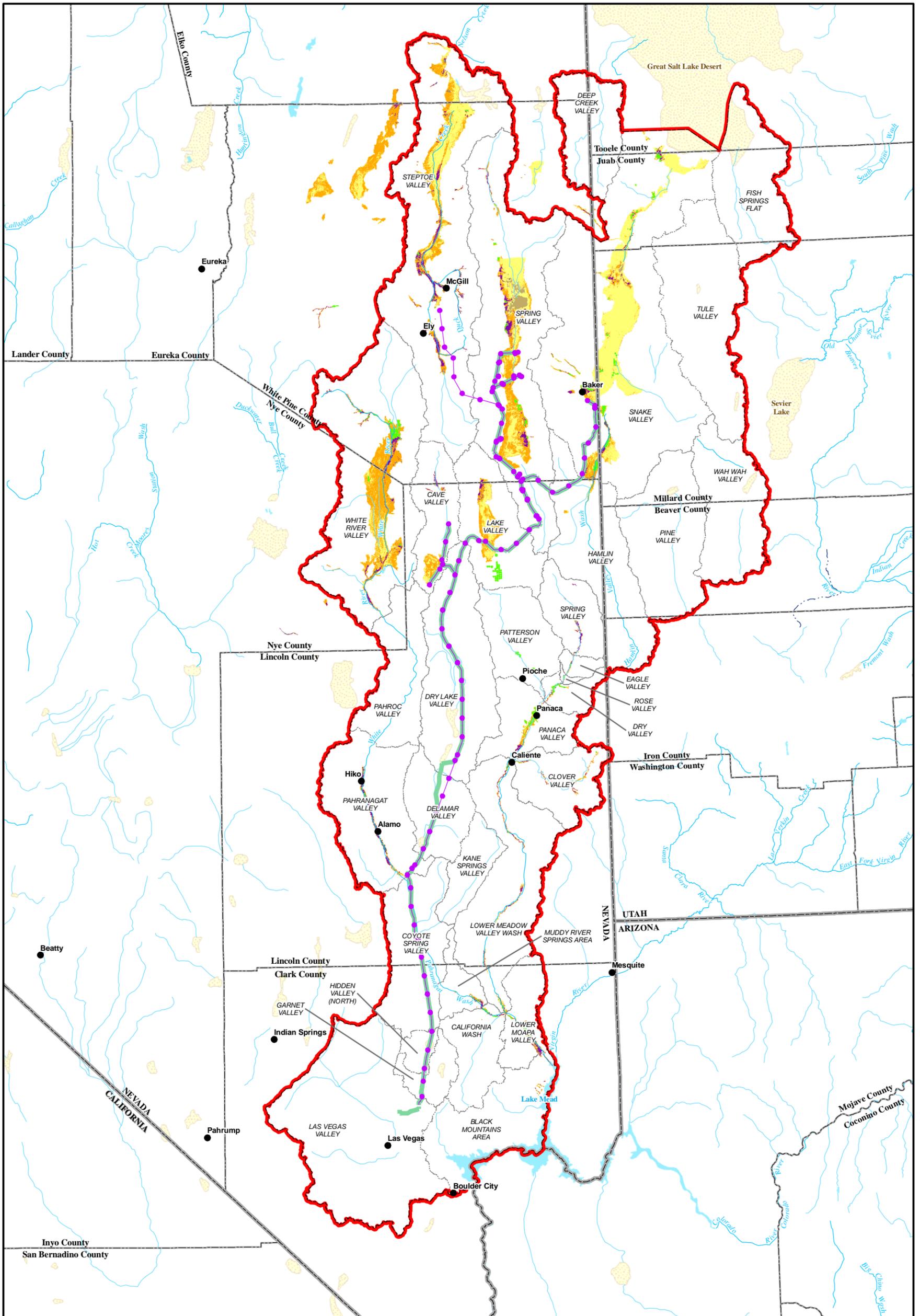
<b>Species (Common and Scientific Name)</b>	<b>Status</b>	<b>Occurrence (Hydrologic Basin, Abundance)</b>
Eastwood milkweed ( <i>Asclepias eastwoodiana</i> )	BLM Sensitive	<p>Dry Lake Valley - Six populations totaling 62 individuals along 26 transects. Habitat: Outwash sands within Inter-Mountain Basins Semi-Desert Shrub Steppe plant community.</p> <p>Muleshoe Valley - Six locations totaling 37 plants. Habitat: deep, fine-textured sands in Great Basin Pinyon-Juniper Woodland.</p>
Parish's phacelia ( <i>Phacelia parishii</i> )	BLM Sensitive	<p>Dry Lake Valley - Large population along playa margin. Habitat: Playa margins with seasonal saturated soil.</p> <p>Cave Valley - Very large population (estimated at more than a million plants). Habitat: Inter-Mountain Basins Greasewood Flat and Inter-Mountain Basins Mixed Salt Desert Scrub.</p> <p>Spring Valley - Two small populations in northern Spring Valley near the origin of the mainline pipeline.</p>
Sunnyside green gentian ( <i>Frasera gypsicola</i> )	Petitioned for listing	Snake Valley - Arthur Cronquist found the species approximately 10 miles north of Garrison in Utah in 1982; 1992 surveys by the BLM in Utah did not relocate species. White River Valley in Nevada.
Ute ladies' tresses orchid ( <i>Spiranthes diluvialis</i> )	Federal Threatened	<p>Spring Valley - Based on field surveys, the potential for orchid occurrence was estimated at the following springs: Unnamed Springs East of Cleve Creek (low to moderate); South Bastion Spring (moderate); and Layton Spring (low to moderate). No Ute ladies' tresses orchids were located during 2006 and 2007 surveys (BIO-WEST 2007).</p> <p>Snake Valley - Based on field surveys, the potential for orchid occurrence was estimated at the following springs: Big Spring system (low); South Little Spring (moderate). No Ute ladies' tresses orchids were located during 2006 and 2007 surveys (BIO-WEST 2007).</p>
Welsh's Cryptantha ( <i>Cryptantha welshii</i> )	BLM Sensitive	<p>Cave Valley - Two populations with over 5,000 plants. Habitat: Inter-Mountain Basin Big Sagebrush Shrubland on sandy calcareous soils.</p> <p>Spring Valley - Twenty seven populations with approximately 15,000 plants sampled on 32 transects in the southern portion of Spring Valley. Habitat: Inter-Mountain Basins Big Sagebrush Shrubland and Great Basin Xeric Mixed Sagebrush Shrubland on calcareous alluvial gravels. Associates: pygmy sagebrush and Green's rabbitbrush.</p>

**Table 2-5 Noxious Weed Species Documented in the ROW/Exploratory Areas, and Region of Study**

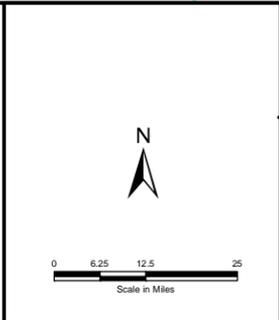
Noxious Weed Species	Hydrographic Basins												
	Las Vegas Valley	Garnet Valley	Hidden Valley (North)	Coyote Springs Valley	Pahranagat Valley	Delamar Valley	Dry Lake Valley	Cave Valley	Lake Valley	Steptoe Valley	Snake Valley	Spring Valley (basin #184)	Hamlin Valley
<i>Black henbane (Hyoscyamus niger)</i>										S			
<i>Bull thistle (Cirsium vulgare)</i>						R	S		S	S	S	R	S
<i>Canada thistle (Cirsium arvense)</i>								S		S	S	E	S
<i>Dalmatian toadflax (Linaria genistifolia)</i>									S				S
<i>Diffuse knapweed (Centaurea diffusa)</i>									S	S			S
<i>Hoary cress (Cardaria draba)</i>					S		E	S	R	R	S	E	
<i>Malta star-thistle (Centaurea melitensis)</i>	S		S										
<i>Musk thistle (Carduus nutans)</i>						E	S			S	S	E	S
<i>Russian knapweed (Acroptilon repens)</i>					S		R	S	R	S	S	E	
<i>Sahara mustard (Brassica tournefortii)</i>	R	R	R	RE									
<i>Saltcedar (Tamarix ramosissima)</i>	S	S	S	RE	S	E	E	S	S	S	E	E	S
<i>Scotch thistle (Onopordum acanthium)</i>					S	E	S		S	S		E	S
<i>Spotted knapweed (Centaurea maculosa)</i>						S	S		R	S	E	RE	S
<i>Squarrose knapweed (Centaurea virgata squarrosa)</i>										S	S		
<i>Tall white-top (Lepidium latifolium)</i>					S		E			S	S	S	
<i>Water hemlock (Cicuta maculate)</i>										S	S	E	

R = Species is present in the ROWs, E = Species is present in one or more of the groundwater exploratory areas, RE = Species is present in both the ROW and one or more groundwater exploratory areas, S = species is potentially present in that basin.

Sources: BLM 2007a; Tri-County Weed Control Project 2007.



- City or Town
- Proposed Power Line
- Proposed Pipeline
- ▭ Flow Basin Study Area
- ▭ Hydrographic Basins
- River or Creek
- Intermittent Stream
- Canal or Aqueduct
- ▭ Lake or Reservoir
- ▭ Dry Lake
- Phreatophytic Land Cover**
- ▭ Agriculture
- ▭ Bare Soil/Low Density Vegetation
- ▭ Open Water
- ▭ Phreatophyte/Medium Density Vegetation
- ▭ Playa
- ▭ Wetland/Meadow



**Proposed Clark, Lincoln, and White Pine Counties Groundwater Development Project**

**Map 2-1**

**Phreatophytes**

## 3.0 Wildlife

### 3.1 Overview

The wildlife resources section provides information on wildlife species of management concern and special status terrestrial wildlife species that occur within the project study area. The BLM manages wildlife habitat on public lands, while NDOW and the UDWR manage wildlife populations on these public lands. The big game mammals, game birds, and furbearers are managed by state agencies because of their recreational/economic values as species. Nongame species that are included in this document are a focus of management concern because populations are declining, there are threats to the species that need to be watched, or the species are protected under regulations included in the Migratory Bird Treaty Act.

Terrestrial wildlife also is characterized at two levels. The first level characterizes terrestrial wildlife resources that may be directly impacted by construction activities within the ROW/groundwater exploratory areas, and includes discussions on wildlife species of management concern (e.g., big game, game birds and waterfowl, raptors, migratory birds, and shorebirds) and special status wildlife species (e.g., special status mammals, reptiles, birds, and invertebrates). The second level characterizes terrestrial wildlife resources that may be indirectly impacted within basins and additional flow systems that may be affected by groundwater drawdown. Information to be gathered for the region of study will focus on wildlife species that utilize surface water features or water-dependent vegetation.

Based on results from the scoping process and feedback from the BLM Interdisciplinary Team and Cooperating Agencies, the following issues and concerns were identified:

- Potential effects of construction and post-construction activities and habitat change on big game migration patterns; long-term loss of wildlife breeding, wintering, and yearlong foraging habitat from surface disturbance; creation of migration barriers; and habitat fragmentation;
- Potential effects of human presence, traffic, and noise on birds and other terrestrial wildlife during the breeding season;
- Potential effects of increased traffic and wildlife collisions;
- Potential effects of new power lines on the desert tortoise and other prey by increasing perching and nesting sites for raptors and ravens;
- Potential effects of new power lines on bird collisions;
- Monitoring and mitigation measures needed to ensure minimum disturbance to wildlife during important times of the year (i.e., migration and breeding season);
- Consideration of protective devices that could be added to power lines to avoid avian/raptor electrocution;
- Potential effects of groundwater drawdown on the movement patterns of terrestrial wildlife;
- Potential effects of groundwater drawdown and decrease in vigor and extent of riparian plant communities and corresponding impacts to breeding and migratory wildlife;
- Potential effects of groundwater drawdown on terrestrial species that rely on and/or utilize groundwater-dependent habitats, such as springs, wetlands/wet meadows, and riparian areas affecting wildlife such as migratory birds, bats, and larger mammals such as the kit fox; and
- Potential effects of groundwater drawdown on cave and karst systems.

## 3.2 Affected Environment Information

The baseline section of the EIS (Chapter 3.0) will characterize terrestrial wildlife resources for the following topics: important wildlife species or groups of management concern (e.g., big game, game birds, waterfowl, raptors, migratory birds, and shorebirds) and special status terrestrial wildlife species. A brief description of the wildlife resource information is provided below, along with literature sources that will be used in the EIS.

### 3.2.1 Wildlife Species of Management Concern

Wildlife species of management concern are defined as species considered to be a focus of management by BLM or the States of Nevada and/or Utah. These species are identified in any one, or a combination, of the following documents: the BLM Ely proposed Resource Management Plan (BLM 2007b), and the Wildlife Action Plans for Nevada (NDOW Wildlife Action Plan Team 2006) and Utah (UDWR 2005). Wildlife species of management concern include big game mammals, small mammals, upland game birds, aquatic birds, raptors, passerines, and other migratory birds (e.g., hummingbirds, sparrows, and corvids), and reptiles. The migratory birds listed in this section include the Species of Conservation Concern and the Game Birds Below Desired Condition identified in the Migratory Bird Treaty Act Interim Management Guidance for the BLM, issued December 18, 2007. **Table 3-1** provides the representative list of wildlife species of management concern and identifies the hydrographic basins in which the species may be found in ROW/groundwater exploratory areas, according to the Nevada and Utah Natural Heritage datasets, data from the state agencies, and project-specific survey data. Thirty-four total bird species and five big game mammal species that are considered wildlife species of management concern have been documented as occurring within the ROW/groundwater exploratory areas.

The types of information that will be used to characterize wildlife species of management concern include:

- Shapefiles and reports of known or potential occurrences for big game (e.g., distribution, corridors, and fawning and wintering habitats) (BLM 2005a; National Park Service [NPS] 2007; UDWR 2005, 2007b; NDOW 2007a; NDOW Wildlife Action Plan Team 2006);
- Data on habitat and life history requirements for big game (UDWR 2005; NDOW Wildlife Action Plan Team 2006);
- Shapefiles and reports of known or potential occurrences for game birds and waterfowl (BLM 2007c; Great Basin Bird Observatory [GBBO] 2007a, 2007b; NDOW 2007b; NPS 2007; SNWA 2007d; UDWR 2005; NDOW Wildlife Action Plan Team 2006);
- Data on habitat and life history requirements for game birds and waterfowl (GBBO 2007a, 2007c; NDOW 2001; UDWR 2005; NDOW Wildlife Action Plan Team 2006);
- Shapefiles and reports of known or potential occurrences for raptors (GBBO 2007a, 2007b; NPS 2007; UDWR 2005; NDOW Wildlife Action Plan Team 2006);
- Data on habitat and life history requirements for raptors (GBBO 2007a, 2007c; UDWR 2005; NDOW Wildlife Action Plan Team 2006);
- Shapefiles, reports, and/or data of known or potential occurrences for migratory birds (Audubon Society 2008; GBBO 2007a, 2007b; NPS 2007; UDWR 2005; NDOW Wildlife Action Plan Team 2006; USGS Patuxent Wildlife Research Center 2007);
- Data on habitat and life history requirements for migratory birds (GBBO 2007a, 2007c; UDWR 2005; NDOW Wildlife Action Plan Team 2006);
- Shapefiles and reports of known or potential occurrences for shorebirds, wading birds, and seabirds (GBBO 2007a, 2007b; UDWR 2005; NDOW Wildlife Action Plan Team 2006);
- Data on habitat and life history requirements for shorebirds (GBBO 2007a, 2007c; UDWR 2005; NDOW Wildlife Action Plan Team 2006); and
- Management direction and occurrence data for species with conservation plans or agreements (e.g., sage grouse).

Table 3-1 Species of Management Concern and Special Status Terrestrial Wildlife Species in the Project Study Area

Species <sup>†</sup>	Status Designations	Hydrographic Basins																																	
		*Las Vegas Valley <sup>1</sup>	*Garnet Valley <sup>2</sup>	*Hidden Valley (North) <sup>2</sup>	*Coyote Spring Valley <sup>2</sup>	*Pahrnagat Valley <sup>2</sup>	*Delamar Valley <sup>2</sup>	*Dry Lake Valley <sup>2</sup>	*Cave Valley <sup>2</sup>	Kane Springs Valley <sup>2</sup>	Pahroc Valley <sup>2</sup>	White River Valley <sup>2</sup>	Muddy River Springs Area <sup>2</sup>	Lower Moapa Valley <sup>2</sup>	California Wash <sup>2</sup>	Black Mountains Area	*Lake Valley <sup>3</sup>	Patterson Valley <sup>3</sup>	Spring Valley (basin #201) <sup>3</sup>	Eagle Valley <sup>3</sup>	Panaca Valley <sup>3</sup>	Lower Meadow Valley Wash <sup>3</sup>	Dry Valley <sup>3</sup>	Clover Valley <sup>3</sup>	Rose Valley <sup>3</sup>	*Steptoe Valley <sup>4</sup>	*Snake Valley <sup>5</sup>	*Spring Valley (basin #184) <sup>5</sup>	*Hamlin Valley <sup>5</sup>	Fish Springs Flat <sup>5</sup>	Tule Valley <sup>5</sup>	Pine Valley <sup>5</sup>	Wah Wah Valley <sup>5</sup>	Deep Creek Valley <sup>5</sup>	
<b>Large Mammals</b>																																			
Desert bighorn sheep ( <i>Ovis canadensis nelsoni</i> )	BLM, MC	RS	RS	RS	RS	RS	RES	RES	RES	S	S	S	S	S	S	S	RS	S	S	S	S	S	S	S	S	S		RES	RS						
Elk ( <i>Cervus canadensis</i> )	MC	S					RES	RES			S					RS	S	S	S			S	S	S	RS	ES	RES	S			S	S	S		
Mule deer ( <i>Odocoileus hemionus</i> )	MC	S			RES	RS	RES	RES	RES		S	S				RS	S	S	S	S	S	S	S	S	RS	RES	RES	RS	S	S	S	S	S		
Pronghorn ( <i>Antilocapra americana</i> )	MC					S	RES	RES	RES		S	S				RS	S			S					RS	RES	RES	RS	S	S	S	S	S		
Rocky Mountain bighorn sheep ( <i>Ovis canadensis canadensis</i> )	NPS, MC																									S	S	ES	S						S
<b>Small Mammals</b>																																			
Allen's big-eared bat ( <i>Idionycteris phyllotis</i> )	BLM, NVP	S																				S									S	S	S		
Big brown bat ( <i>Eptesicus fuscus</i> )	BLM	S	S	S	S	RS	ES	ES	ES	S	S	S	S	S	S	S		S		S	S	S		S		S	ES	ES	S	S	S	S	S	S	
Big free-tailed bat ( <i>Nyctinomops macrotis</i> )	BLM	S				S	ES	ES				S	S	S					S	S	S		S	S		S	S	S	S	S	S	S	S		
Brazilian free-tailed bat ( <i>Tadarida brasiliensis</i> )	BLM, NVP	S				RS	ES	ES	ES	S		S	S	S	S	S		S	S	S	S	S	S	S	S	ES	ES	S	S	S	S	S	S		
Brush mouse ( <i>Peromyscus boyleyi</i> )	MC	S	S	S	S	S	S	S		S		S	S	S	S				S	S	S	S	S	S		S		S			S				
California myotis ( <i>Myotis californicus</i> )	BLM	S	S	S	S	RS	ES	ES	S	S	S	S	S	S	S			S	S	S	S		S	S		S	ES	S	S	S	S	S	S		
Dark kangaroo mouse ( <i>Microdipodops megacephalus</i> )	UTSC, NVP						RES	RES			S					S	S	S		S			S		S	S	RES	RS	S	S	S	S	S		
Desert kangaroo rat ( <i>Dipodomys deserti</i> )	MC	S	S	S	S		ES			S		S	S	S	S							S													
Desert pocket mouse ( <i>Chaetodipus pencillatus</i> )	MC	S	S	S	S	S	S	S		S		S	S	S	S							S													
Desert valley kangaroo mouse ( <i>Microdipodops megacephalus albiventer</i> )	BLM						S	S			S	S																							
Fringed myotis ( <i>Myotis thysanodes</i> )	BLM, NVP, UTSC, NPS	S			S	RS	ES	ES	ES	S	S		S	S			S	S				S				S	ES	S	S	S	S	S	S		
Hoary bat ( <i>Lasiurus cinereus</i> )	BLM, NPS	S				RS	ES	S	ES			S	S			S						S				ES	ES	S	S	S	S	S	S		

**Table 3-1 Species of Management Concern and Special Status Terrestrial Wildlife Species in the Project Study Area**

Species <sup>†</sup>	Status Designations	Hydrographic Basins																																		
		*Las Vegas Valley <sup>1</sup>	*Garnet Valley <sup>2</sup>	*Hidden Valley (North) <sup>2</sup>	*Coyote Spring Valley <sup>2</sup>	*Pahranagat Valley <sup>2</sup>	*Delamar Valley <sup>2</sup>	*Dry Lake Valley <sup>2</sup>	*Cave Valley <sup>2</sup>	Kane Springs Valley <sup>2</sup>	Pahroc Valley <sup>2</sup>	White River Valley <sup>2</sup>	Muddy River Springs Area <sup>2</sup>	Lower Moapa Valley <sup>2</sup>	California Wash <sup>2</sup>	Black Mountains Area	*Lake Valley <sup>3</sup>	Patterson Valley <sup>3</sup>	Spring Valley (basin #201) <sup>3</sup>	Eagle Valley <sup>3</sup>	Panaca Valley <sup>3</sup>	Lower Meadow Valley Wash <sup>3</sup>	Dry Valley <sup>3</sup>	Clover Valley <sup>3</sup>	Rose Valley <sup>3</sup>	*Steptoe Valley <sup>4</sup>	*Snake Valley <sup>5</sup>	*Spring Valley (basin #184) <sup>5</sup>	*Hamlin Valley <sup>5</sup>	Fish Springs Flat <sup>5</sup>	Tule Valley <sup>5</sup>	Pine Valley <sup>5</sup>	Wah Wah Valley <sup>5</sup>	Deep Creek Valley <sup>5</sup>		
Inyo shrew ( <i>Sorex tenellus</i> )	NPS, MC	S																									S									
Kit fox ( <i>Vulpes macrotis</i> )	MC	S	S	S	RS	S	S	S	S	S	S	S	S	S	S	S					S	S	S	S			S		S	S	S	S	S	S		
Little brown bat ( <i>Myotis lucifugus</i> )	BLM	S				S	ES	ES	ES		S						S									ES	ES	S	S	S	S	S	S	S		
Long-eared myotis ( <i>Myotis evotis</i> )	BLM, NPS	S				S	ES	ES	ES		S	S					S		S	S						S	ES	ES	S	S	S	S	S	S		
Merriam's shrew ( <i>Sorex merriam</i> )	NPS, MC					S	S			S	S	S							S	S	S	S	S	S		S		S				S				
Pacific western big-eared bat ( <i>Corynorhinus townsendii townsendii</i> )	BLM, USFS, NVP, UTSC	S				S	ES	S	S	S	S	S	S	S	S				S	S	S	S			S	S	S	S	S	S	S	S	S	S	S	
Pahranagat Valley montane vole ( <i>Microtus montanus fucosus</i> )	BLM, NVP					S																														
Pale kangaroo mouse ( <i>Microdipodops pallidus</i> )	BLM, NVP					S																														
Pallid bat ( <i>Antrozous pallidus</i> )	BLM, NVP, NPS	S	S	ES	ES	RS	ES	ES	ES	S	S	S	ES	ES	S	S	S	S	S	S	S	S	S	S	S	S	ES	ES	S	S	S	S	S	S	S	
Pygmy rabbit ( <i>Brachylagus idahoensis</i> )	P, BLM, NVP, UTSC, NPS							RES	RES		S	S					RS	S	S	S	S					S	ES	RES	S	S	S	S	S	S	S	
Ringtail ( <i>Bassriscus astutus</i> )	MC	S	S	S	S		S	S		S	S		S	S	S				S	S	S	S			S	S	S	S	S	S	S	S	S	S	S	
Silver-haired bat ( <i>Lasionycteris noctivagans</i> )	BLM, NPS	S				S			ES	S		S	S	S				S								S	ES	ES	S	S	S	S	S	S	S	
Spotted bat ( <i>Euderma maculatum</i> )	BLM, NVP, NPS	S										S	S	S							S	S	S			S	S	S	S	S	S	S	S	S		
Vagrant shrew ( <i>Sorex vagrans</i> )	MC																									S	S	S		S						
Water shrew ( <i>Sorex palustris</i> )	MC																									S	S									
Western pipistrelle ( <i>Pipistrellus hesperus</i> )	BLM	S	S	S	S	RS	ES	ES	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	ES	S	S	S	S	S	S	S	S	
Western red bat ( <i>Lasiurus blossevillii</i> )	BLM, NVP					S	ES	S				S	S	S	S				S	S		S			S	S	S		S	S	S	S	S	S		
Western small-footed myotis ( <i>Myotis ciliolabrum</i> )	BLM	S				RS	ES	ES	ES	S	S	S					S		S	S	S	S			S	S	ES	ES	S	S	S	S	S	S	S	
Yuma myotis ( <i>Myotis yumanensis</i> )	BLM	S	S	S	S	S	ES	S	S	S	S	S	S	S	S							S				S		S	S	S	S	S	S	S		

Table 3-1 Species of Management Concern and Special Status Terrestrial Wildlife Species in the Project Study Area

Species <sup>†</sup>	Status Designations	Hydrographic Basins																																			
		*Las Vegas Valley <sup>1</sup>	*Garnet Valley <sup>2</sup>	*Hidden Valley (North) <sup>2</sup>	*Coyote Spring Valley <sup>2</sup>	*Pahrnagat Valley <sup>2</sup>	*Delamar Valley <sup>2</sup>	*Dry Lake Valley <sup>2</sup>	*Cave Valley <sup>2</sup>	Kane Springs Valley <sup>2</sup>	Pahroc Valley <sup>2</sup>	White River Valley <sup>2</sup>	Muddy River Springs Area <sup>2</sup>	Lower Moapa Valley <sup>2</sup>	California Wash <sup>2</sup>	Black Mountains Area	*Lake Valley <sup>3</sup>	Patterson Valley <sup>3</sup>	Spring Valley (basin #201) <sup>3</sup>	Eagle Valley <sup>3</sup>	Panaca Valley <sup>3</sup>	Lower Meadow Valley Wash <sup>3</sup>	Dry Valley <sup>3</sup>	Clover Valley <sup>3</sup>	Rose Valley <sup>3</sup>	*Steptoe Valley <sup>4</sup>	*Snake Valley <sup>5</sup>	*Spring Valley (basin #184) <sup>5</sup>	*Hamlin Valley <sup>5</sup>	Fish Springs Flat <sup>5</sup>	Tule Valley <sup>5</sup>	Pine Valley <sup>5</sup>	Wah Wah Valley <sup>5</sup>	Deep Creek Valley <sup>5</sup>			
<b>Birds</b>																																					
American avocet ( <i>Recurvirostra Americana</i> )	MC	S <sup>B</sup>				S <sup>M</sup>						S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>			S <sup>M</sup>	S <sup>M</sup>							S <sup>M</sup>	S <sup>M</sup>			S <sup>B</sup>	S <sup>B</sup>	S <sup>M</sup>		S <sup>B</sup>		
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	NVP	S <sup>M</sup>			S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>			S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>		S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>							S <sup>M</sup>	ES <sup>M</sup>	ES <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	
Band-tailed pigeon ( <i>Patagioenas fasciata</i> )	MC	S <sup>M</sup>																																			
Bell's vireo ( <i>Vireo bellii</i> )	MC	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>			S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>M</sup>						S <sup>B</sup>		S <sup>M</sup>														
Black-throated gray warbler ( <i>Dendroica nigrescens</i> )	MC	S <sup>B</sup>			ES <sup>B</sup>			S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>					S <sup>M</sup>		S <sup>M</sup>	S <sup>M</sup>			S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	ES <sup>B</sup>	ES <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>								
Brewer's sparrow ( <i>Spizella breweri</i> )	NPS, MC	S <sup>B</sup>	S <sup>M</sup>		ES <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	ES <sup>B</sup>	S <sup>M</sup>		S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>			S <sup>B</sup>		S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	ES <sup>B</sup>	ES <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>		
Cactus wren ( <i>Campylorhynchus brunneicapillus</i> )	MC	S <sup>B</sup>			ES <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>		S <sup>M</sup>			S <sup>M</sup>	S <sup>B</sup>							S <sup>B</sup>																
Canada goose ( <i>Branta canadensis</i> )	MC	S <sup>M</sup>			S <sup>M</sup>	S <sup>B</sup>						S <sup>M</sup>		S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>											S <sup>M</sup>	S <sup>B</sup>			S <sup>B</sup>	S <sup>M</sup>				S <sup>B</sup>	
Caspian tern ( <i>Sterna caspia</i> )	MC	S <sup>M</sup>				S <sup>M</sup>						S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>																		S <sup>B</sup>					
Cassin's sparrow ( <i>Aimophila cassinii</i> )	MC																					S <sup>M</sup>															
Common yellowthroat ( <i>Geothlypis trichas</i> )	BLM, NVP	S <sup>B</sup>			ES <sup>M</sup>	S <sup>B</sup>						S <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>				S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>			S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	
Costa's hummingbird ( <i>Calypte costae</i> )	MC	S <sup>B</sup>			ES <sup>M</sup>	S <sup>M</sup>																S <sup>B</sup>															
Crissal thrasher ( <i>Toxostoma crissale</i> )	MC	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>			S <sup>B</sup>		S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>							S <sup>B</sup>															
Ferruginous hawk ( <i>Buteo regalis</i> )	BLM, NVP, UTSC, NPS				S <sup>M</sup>	S <sup>M</sup>	RS <sup>M</sup>	ES <sup>M</sup>				S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>				S <sup>B</sup>	S <sup>M</sup>							S <sup>B</sup>	ES <sup>B</sup>	ES <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>
Flammulated owl ( <i>Otus flammeolus</i> )	NPS, MC	S <sup>B</sup>			S <sup>M</sup>	S <sup>M</sup>						S <sup>M</sup>								S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>		S <sup>M</sup>		S <sup>M</sup>	ES <sup>M</sup>	S <sup>M</sup>		S <sup>M</sup>	S <sup>M</sup>					S <sup>M</sup>	
Golden eagle ( <i>Aquila chrysaetos</i> )	BLM	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	ES <sup>B</sup>	RES <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	ES <sup>B</sup>	RES <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	
Grace's warbler ( <i>Dendroica graciae</i> )	MC	S <sup>B</sup>									S <sup>M</sup>										S <sup>M</sup>																
Grasshopper sparrow ( <i>Ammodramus savannarum</i> )	MC					S <sup>M</sup>						S <sup>B</sup>																S <sup>B</sup>			S <sup>B</sup>	S <sup>B</sup>				S <sup>B</sup>	
Gray vireo ( <i>Vireo vicinior</i> )	BLM	S <sup>M</sup>			S <sup>M</sup>			S <sup>B</sup>		S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>						S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	ES <sup>M</sup>	S <sup>M</sup>			S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>M</sup>	



**Table 3-1 Species of Management Concern and Special Status Terrestrial Wildlife Species in the Project Study Area**

Species <sup>†</sup>	Status Designations	Hydrographic Basins																																		
		*Las Vegas Valley <sup>1</sup>	*Garnet Valley <sup>2</sup>	*Hidden Valley (North) <sup>2</sup>	*Coyote Spring Valley <sup>2</sup>	*Pahranaagat Valley <sup>2</sup>	*Delamar Valley <sup>2</sup>	*Dry Lake Valley <sup>2</sup>	*Cave Valley <sup>2</sup>	Kane Springs Valley <sup>2</sup>	Pahroc Valley <sup>2</sup>	White River Valley <sup>2</sup>	Muddy River Springs Area <sup>2</sup>	Lower Moapa Valley <sup>2</sup>	California Wash <sup>2</sup>	Black Mountains Area	*Lake Valley <sup>3</sup>	Patterson Valley <sup>3</sup>	Spring Valley (basin #201) <sup>3</sup>	Eagle Valley <sup>3</sup>	Panaca Valley <sup>3</sup>	Lower Meadow Valley Wash <sup>3</sup>	Dry Valley <sup>3</sup>	Clover Valley <sup>3</sup>	Rose Valley <sup>3</sup>	*Steptoe Valley <sup>4</sup>	*Snake Valley <sup>5</sup>	*Spring Valley (basin #184) <sup>5</sup>	*Hamlin Valley <sup>5</sup>	Fish Springs Flat <sup>5</sup>	Tule Valley <sup>5</sup>	Pine Valley <sup>5</sup>	Wah Wah Valley <sup>5</sup>	Deep Creek Valley <sup>5</sup>		
Rufous hummingbird ( <i>Selasphorus rufus</i> )	MC	S <sup>M</sup>																	S <sup>M</sup>								S <sup>M</sup>	S <sup>M</sup>		S <sup>M</sup>						
Sage sparrow ( <i>Amphispiza belli</i> )	MC	S <sup>B</sup>	S <sup>M</sup>		S <sup>M</sup>	S <sup>M</sup>			RES <sup>B</sup>		S <sup>B</sup>			S <sup>B</sup>			S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>							S <sup>B</sup>	ES <sup>B</sup>	ES <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>
Short-eared owl ( <i>Asio flammeus</i> )	BLM, UTSC, NPS	S <sup>M</sup>				S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>		S <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>						S <sup>B</sup>	S <sup>B</sup>							S <sup>M</sup>	S <sup>M</sup>		S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	
Song sparrow ( <i>Melospiza melodia</i> )	MC	S <sup>M</sup>			ES <sup>M</sup>	S <sup>B</sup>				S <sup>M</sup>		S <sup>B</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>							S <sup>B</sup>		S <sup>B</sup>		S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>		S <sup>B</sup>	S <sup>B</sup>				S <sup>B</sup>	
Southwestern willow flycatcher ( <i>Epidonax trailii extimus</i> )	FE, NVP	S <sup>M</sup>				S <sup>B</sup>						S <sup>B</sup>	S <sup>B</sup>		S <sup>M</sup>							S <sup>B</sup>														
Spotted towhee ( <i>Pipilo maculatus</i> )	MC	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>		S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>B</sup>			S <sup>B</sup>			S <sup>M</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>		S <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	
Swainson's hawk ( <i>Buteo swainsoni</i> )	BLM, NPS	S <sup>M</sup>				S <sup>M</sup>					S <sup>M</sup>															S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>		S <sup>M</sup>	S <sup>M</sup>				S	
Vesper sparrow ( <i>Pooecetes gramineus</i> )	MC	S <sup>M</sup>			S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>		ES <sup>B</sup>			S <sup>B</sup>		S <sup>M</sup>			S <sup>M</sup>					S <sup>M</sup>				S <sup>B</sup>	ES <sup>B</sup>	ES <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>		S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>
Virginia's warbler ( <i>Vermivora virginiae</i> )	MC	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>					S <sup>M</sup>			S <sup>B</sup>				S <sup>B</sup>	S <sup>B</sup>			S <sup>M</sup>						
Western burrowing owl ( <i>Athene cunicularia hypugea</i> )	BLM, NVP, UTSC, NPS	RS <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	ES <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	ES <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	ES <sup>B</sup>	RES <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>	
Western snowy plover ( <i>Charadrius alexandrinus nivosus</i> )	BLM, NVP	S <sup>M</sup>										S <sup>M</sup>															S <sup>M</sup>	S <sup>M</sup>		S <sup>M</sup>						
Western yellow-billed cuckoo ( <i>Coccyzus americanus occidentalis</i> )	FC, NVP	S <sup>M</sup>				S <sup>M</sup>	ES <sup>M</sup>					S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>								S <sup>M</sup>												S <sup>M</sup>		
Willet ( <i>Tringa semipalmata</i> )	MC	S <sup>M</sup>				S <sup>M</sup>						S <sup>M</sup>		S <sup>M</sup>												S <sup>M</sup>	S <sup>M</sup>	S <sup>B</sup>		S <sup>B</sup>					S <sup>B</sup>	
Williamson's sapsucker ( <i>Sphyrapicus thyroideus</i> )	MC	S <sup>M</sup>																								S <sup>BO</sup>	S <sup>B</sup>	S <sup>M</sup>								
Wilson's phalarope ( <i>Phalaropus tricolor</i> )	MC	S <sup>M</sup>				S <sup>M</sup>						S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>	S <sup>M</sup>											S <sup>B</sup>	S <sup>M</sup>	S <sup>B</sup>		S <sup>B</sup>					S <sup>B</sup>	
Yellow warbler ( <i>Dendroica petechia</i> )	MC	S <sup>B</sup>			ES <sup>M</sup>	S <sup>B</sup>						S <sup>B</sup>		S <sup>M</sup>	S <sup>B</sup>	S <sup>M</sup>			S <sup>M</sup>			S <sup>B</sup>		S <sup>M</sup>		S <sup>B</sup>	S <sup>B</sup>	S <sup>B</sup>		S <sup>B</sup>				S <sup>B</sup>	S <sup>B</sup>	
Yuma clapper rail ( <i>Rallus longirostris yumanensis</i> )	FE, UTSC	S <sup>M</sup>				S <sup>M</sup>						S <sup>M</sup>	S <sup>M</sup>		S <sup>M</sup>																					
<b>Reptiles</b>																																				
Banded gila monster ( <i>Heloderma suspectum cinctum</i> )	BLM, NVP	S	S	S	S	S	S				S		S	S	S	S																				





### 3.2.2 Special Status Wildlife Species

Special status wildlife species are those species for which federal or state agencies afford an additional level of protection by law, regulation, or policy. This terminology includes species that are federally listed and proposed under the Endangered Species Act (ESA); species considered as candidates for such listing by the USFWS; USFS sensitive species; BLM sensitive species; NPS sensitive species; and species that are state protected in Nevada and Utah. Species considered in the study area were identified based on a list provided by the USFWS (2006) and Nevada and Utah Natural Heritage databases for species status. The types of information that will be used to determine occurrences of special status wildlife species within the ROWs/groundwater exploratory areas and the overall region of study include:

- Shapefiles and reports of known or potential occurrences for special status mammals (Jones & Stokes 2005; NNHP 2006a; NPS 2007; O'Farrell 2006; SNWA 2007b, 2007c, 2007d; UDWR 2007b; UNHP 2005; USFWS 2007b; UDWR 2005; Wildland International 2007; NDOW Wildlife Action Plan Team 2006);
- Data on habitat and life history requirements for special status mammals (UDWR 2005; NDOW Wildlife Action Plan Team 2006);
- Shapefiles and reports of known or potential occurrences for special status reptiles (Jones & Stokes 2005; SNWA 2007e; UDWR 2005; Wildland International 2007; NDOW Wildlife Action Plan Team 2006);
- Data on habitat and life history requirements for special status reptiles (UDWR 2005; SNWA 2007e; NDOW Wildlife Action Plan Team 2006; Hamilton and Thomas 2007);
- Shapefiles and reports of known or potential occurrences for special status birds (GBBO 2007a, 2007b; NNHP 2006a; NPS 2007; UDWR 2005, 2007b; UNHP 2005; Wildland International 2007; NDOW Wildlife Action Plan Team 2006);
- Data on habitat and life history requirements for special status birds (GBBO 2007a, 2007c; UDWR 2005; NDOW Wildlife Action Plan Team 2006);
- Shapefiles of known or potential occurrences for special status invertebrates (NNHP 2006a; UDWR 2007b; UNHP 2005); and
- Data on habitat and life history requirements for special status invertebrates (NatureServe 2007). There is limited information available on most invertebrate species; however, the information available is sufficient to identify habitat types used.

### 3.3 Data Gaps

No data gaps were identified for the ROW/groundwater exploratory areas. Tribal-sensitive wildlife species represent a potential data gap. Letters have been sent to the tribes requesting a list of tribal-sensitive species that may occur in the region of study.

### 3.4 Project Area Occurrence

Important wildlife and special status species occurrences will be identified in the ROWs/groundwater exploratory areas and the region of study. **Table 3-1** summarizes the occurrence of wildlife species of management concern and special status wildlife species within these areas.

## 4.0 Aquatic Resources

### 4.1 Overview

The aquatic species section provides information on the types of aquatic communities (fish, macroinvertebrates, and amphibians) and their habitat within the project study area. The BLM manages aquatic habitat on public lands, while NDOW and UDWR manage aquatic species on these public lands. The game fish species are managed by state agencies because of their recreational/economic values as species. Nongame species are included in this document because populations are declining or there are threats to the species that need to be watched.

Aquatic habitat (perennial streams, reservoirs, springs, and wetlands/meadows) will be described as part of the baseline characterization for surface water resources and aquatic biology. This section also will include the occurrence of special status aquatic species (fish, invertebrates, and amphibians) and their habitat in the project area. Aquatic species will be characterized for the ROWs, groundwater exploratory areas, and the overall region of study, as discussed for vegetation and wildlife.

Based on results from scoping process and feedback from the BLM Interdisciplinary Team and Cooperating Agencies, the following issues and concerns were identified for aquatic species:

- Potential for increases in short-term suspended sedimentation as a result of pipeline crossings at streams or wetlands;
- Potential effects of hydrostatic testing and dust control water use;
- Potential effects of groundwater drawdown on aquatic species and their habitat;
- Potential reduction and alteration in groundwater flows within cave-systems, resulting in potential microclimate modifications and reduced habitat availability for cave-dependent organisms;
- Potential alterations in food chains relationships within these water-dependant communities, and alterations in long-term community structures and species composition;
- Potential reduction in habitat quality and effects on associated biodiversity and species abundance; and
- Mitigation and monitoring measures required for aquatic species and their habitat during and after project construction.

### 4.2 Affected Environment Information

The baseline section of the EIS (Chapter 3.0) will characterize aquatic resources for the following topics: general types of fish communities (emphasis on game fish species), aquatic habitats, macroinvertebrates, amphibians, and special status aquatic species (e.g., special status fish, amphibians, and invertebrates). A brief description of the aquatic resource information is provided below along with literature sources that will be used in the EIS.

#### 4.2.1 Habitat

The study area is located mainly in two ecoregions; the Mojave Desert and the Great Basin Desert. Both of these ecoregions are arid environments that receive relatively little precipitation, and thus, aquatic environments generally are limited in number and often isolated from one another. Aquatic habitat primarily consists of intermittent and ephemeral washes and seeps/springs. Spring systems are scattered throughout the study area and represent the majority of the reliable water sources in the region (BIO-WEST 2007). As a result, the springs/seeps provide habitat for a variety of fish, invertebrate, and amphibian species. Permanent

waterbodies in the form of perennial streams and lakes/reservoirs also are present in portions of the study area, with the highest number occurring in the northern basins such as Snake, Spring (#184), Steptoe, Deep Creek, and White River. These habitats support the majority of the game fish populations within the study area. The following information will be used to characterize aquatic habitat:

- A figure showing the occurrence of perennial streams and springs within the ROW/groundwater exploratory areas will be provided in the EIS;
- Shapefiles for springs (BIO-WEST 2007; Sada 2007a); and
- A narrative discussion will describe the types of aquatic habitat that occur within the ROWs/groundwater exploratory areas and within the region of study.

#### **4.2.2 Game Fish Species**

Game fish species are those fish species identified under state management authorities (NDOW and UDWR) for legal regulated harvest. The types of information that will be used to characterize game fish species include:

- Game fish occurrence by hydrological basin (NDOW 2006; UDWR 2007c); and
- Data on habitat and life history requirements for game fish species (UDWR 2005; NDOW Wildlife Action Plan Team 2006).

#### **4.2.3 Other Aquatic Species**

The occurrence of invertebrates and amphibians will be discussed in general terms by describing composition for general types of aquatic habitat. Field guides (Stebbins 2003) and occurrence data (BIO-WEST 2007; Hershler 1998; Hershler and Sada 2002; Sada 2007a, 2007b; NNHP 2006a; UNHP 2005; USFWS 2005) will be used to characterize amphibian and invertebrate communities in the project study area. Invertebrate species associated with caves within the Baker, Lehman, and Snake creeks in Great Basin National Park also will be discussed in terms of their diversity and uniqueness.

#### **4.2.4 Special Status Aquatic Species**

Special status aquatic species are defined as federally listed and federally proposed under the ESA; species considered as candidates for such listing by the USFWS; USFS sensitive species; BLM sensitive species; and species that are state protected in Nevada and Utah. Species considered in the study area were identified based on a list provided by the USFWS (2006) and Nevada and Utah Natural Heritage databases for species status. Springsnails, a group of mollusks that are found in perennial springs and seeps, are considered special status organisms due to their restricted distribution and native origin. Although a number of springsnail species are considered BLM sensitive species, the entire group of springsnails is managed as special status aquatic species. The types of information that will be used to characterize special status aquatic species include:

- Special status aquatic species occurrence by hydrological basin (NDOW 2006; UDWR 2005);
- A list of waterbodies inhabited by special status fish species (NDOW 2006; UDWR 2005);
- Shapefiles identifying the occurrence of designated critical habitat for federally listed species;
- Shapefiles and reports of known or potential occurrences for special status aquatic species (BIO-WEST 2007; BLM 2005b, 2005c, 2007d; Hershler and Sada 2002; Hitchcock 2001; NNHP 2006a; Sada 2007a; Sada et.al. 2002; UDWR 2007d, 2007e, 2007f; UNHP 2005; USFWS 2005);

- Data on habitat and life history requirements for special status aquatic species (NDOW Wildlife Action Plan Team 2006); and
- Management direction and occurrence data for species with conservation plans or agreements (e.g., Bonneville cutthroat trout, least chub, relict leopard frog, and Columbia spotted frog).

### **4.3 Data Gaps**

The following data gaps were identified for aquatic species and their habitat:

- As a result of the restricted access to aquatic areas of interest on private lands, data gaps exist for northern leopard frog, invertebrates, and native fish species in Cave, White River, and Pahranaagat valleys.
- Tribal-sensitive aquatic species represent a potential data gap. Letters have been sent to the tribes requesting a list of tribal sensitive species that may occur in the region of study.

### **4.4 Project Area Occurrence**

The occurrence of game fish and special status aquatic species for the ROWs/groundwater exploratory areas, and the overall region of study is listed in **Table 4-1**. Game fish occurrence by specific waterbodies is provided in **Table 4-2**. Waterbodies inhabited by special status aquatic species are included in **Table 4-3**.



**Table 4-1 Special Status Aquatic Species in the Project Study Area**

<b>Aquatic Species</b>	<b>Status</b>	<b>*Las Vegas Valley<sup>1</sup></b>	<b>*Garnet Valley<sup>2</sup></b>	<b>*Hidden Valley (North)<sup>2</sup></b>	<b>*Coyote Spring Valley<sup>2</sup></b>	<b>*Pahranaagat Valley<sup>2</sup></b>	<b>*Delamar Valley<sup>2</sup></b>	<b>*Dry Lake Valley<sup>2</sup></b>	<b>*Cave Valley<sup>2</sup></b>	<b>Kane Springs Valley<sup>2</sup></b>	<b>Pahroc Valley<sup>2</sup></b>	<b>White River Valley<sup>2</sup></b>	<b>Muddy River Springs Area<sup>2</sup></b>	<b>Lower Moapa Valley<sup>2</sup></b>	<b>California Wash<sup>2</sup></b>	<b>Black Mountains Area</b>	<b>*Lake Valley<sup>3</sup></b>	<b>Patterson Valley<sup>3</sup></b>	<b>Spring Valley (basin #201)<sup>3</sup></b>	<b>Eagle Valley<sup>3</sup></b>	<b>Panaca Valley<sup>3</sup></b>	<b>Lower Meadow Valley Wash<sup>3</sup></b>	<b>Dry Valley<sup>3</sup></b>	<b>Clover Valley<sup>3</sup></b>	<b>Rose Valley<sup>3</sup></b>	<b>*Steptoe Valley<sup>4</sup></b>	<b>*Snake Valley<sup>5</sup></b>	<b>*Spring Valley (basin #184)<sup>5</sup></b>	<b>*Hamlin Valley<sup>5</sup></b>	<b>Fish Springs Flat<sup>5</sup></b>	<b>Tule Valley<sup>5</sup></b>	<b>Pine Valley<sup>5</sup></b>	<b>Wah Wah Valley<sup>5</sup></b>	<b>Deep Creek Valley<sup>5</sup></b>	
Pahranaagat speckled dace ( <i>Rhinichthys osculus velifer</i> )	BLM, NVP					S																													
Pahrump poolfish ( <i>Empetrichthys latos</i> )	FE, NVP	S																										S							
Preston White River springfish ( <i>Crenichthys baileyi albivallis</i> )	BLM, NVP											S																							
Rainbow trout ( <i>Oncorhynchus mykiss</i> )	GF					S						S							S	S	S	S	S	S	S	RS	RES	ES				S		S	
Redside shiner ( <i>Richardsonius balteatus</i> )	NLD																																		
Relict dace ( <i>Relictus solitarius</i> )	BLM, NVP																								S			ES							
Sacramento perch ( <i>Archoglytes interruptus</i> )	GF																																		
Speckled dace ( <i>Rhinichthys osculus</i> )	NLD																																		
Utah chub ( <i>Gila atrairai</i> )	NLD																																		
Utah sucker ( <i>Catostomus ardens</i> )	NLD																																		
Virgin River chub ( <i>Gila seminuda</i> )	NVP												S	S	S																				
White crappie ( <i>Pomoxis annularis</i> )	GF					S													S			S		S											
White River desert sucker ( <i>Catostomus clarki intermedius</i> )	BLM, NVP											S																							
White River speckled dace ( <i>Rhinichthys osculus</i> spp.)	BLM											S																							
White River spinedace ( <i>Lepidomeda albivallis</i> )	FE, NVP											S																							
White River springfish ( <i>Crenichthys baileyi baileyi</i> )	FE, NVP					S																													
<b>Invertebrates</b>																																			
Bifid duct springsnail ( <i>Pyrgulopsis peculiaris</i> )	BLM, UTSC																											S	S						
Butterfield springsnail ( <i>Pyrgulopsis lata</i> )	NLD										S																								
California floater ( <i>Anodonta californiensis</i> )	BLM, UTSC																											S							
Camp Valley springsnail ( <i>Pyrgulopsis montata</i> )	NLD																			S															
Cloaked physa ( <i>Physella megalochlamys</i> )	UTSC																										S								

Table 4-1 Special Status Aquatic Species in the Project Study Area

Aquatic Species	Status	*Las Vegas Valley <sup>1</sup>	*Garnet Valley <sup>2</sup>	*Hidden Valley (North) <sup>2</sup>	*Coyote Spring Valley <sup>2</sup>	*Pahranagat Valley <sup>2</sup>	*Delamar Valley <sup>2</sup>	*Dry Lake Valley <sup>2</sup>	*Cave Valley <sup>2</sup>	Kane Springs Valley <sup>2</sup>	Pahroc Valley <sup>2</sup>	White River Valley <sup>2</sup>	Muddy River Springs Area <sup>2</sup>	Lower Moapa Valley <sup>2</sup>	California Wash <sup>2</sup>	Black Mountains Area	*Lake Valley <sup>3</sup>	Patterson Valley <sup>3</sup>	Spring Valley (basin #201) <sup>3</sup>	Eagle Valley <sup>3</sup>	Panaca Valley <sup>3</sup>	Lower Meadow Valley Wash <sup>3</sup>	Dry Valley <sup>3</sup>	Clover Valley <sup>3</sup>	Rose Valley <sup>3</sup>	*Steptoe Valley <sup>4</sup>	*Snake Valley <sup>5</sup>	*Spring Valley (basin #184) <sup>5</sup>	*Hamlin Valley <sup>5</sup>	Fish Springs Flat <sup>5</sup>	Tule Valley <sup>5</sup>	Pine Valley <sup>5</sup>	Wah Wah Valley <sup>5</sup>	Deep Creek Valley <sup>5</sup>	
Corn Creek pyrg ( <i>Pyrgulopsis fausta</i> )	NLD	S																																	
Emigrant springsnail ( <i>Pyrgulopsis gracilis</i> )	NLD											S																							
Flag springsnail ( <i>Pyrgulopsis breviloba</i> )	NLD							S	S			S																							
Flat-topped steptoe springsnail ( <i>Pyrgulopsis planulata</i> )	NLD																									S									
Grated tryonia ( <i>Tryonia clathrata</i> )	BLM, NVP					S						S	S																						
Hamlin Valley springsnail ( <i>Pyrgulopsis hamlinensis</i> )	P, UTSC																													S					
Hardy springsnail ( <i>Pyrgulopsis marcida</i> )	NVP								S			S																							
Hubbs springsnail ( <i>Pyrgulopsis hubbsi</i> )	NLD					S																													
Lake Valley springsnail ( <i>Pyrgulopsis sublata</i> )	NLD																S																		
Landyes springsnail ( <i>Pyrgulopsis landeyi</i> )	BLM																									S									
Longitudinal gland springsnail ( <i>Pyrgulopsis anguina</i> )	P, UTSC																										S								
Moapa pebblesnail ( <i>Pyrgulopsis avernalis</i> )	NLD												S																						
Moapa Valley springsnail ( <i>Pyrgulopsis carinifera</i> )	NLD												S																						
Moapa Warm springs riffle beetle ( <i>Stenelmis moapa</i> )	BLM												S																						
Neretiform steptoe ranch ( <i>Pyrgulopsis neritella</i> )	NLD																									S									
Northern steptoe springsnail ( <i>Pyrgulopsis serrata</i> )	NLD																									S									
Pahranagat naucorid bug ( <i>Pelocoris shoshone shoshone</i> )	BLM					S							S																						
Pahranagat pebblesnail ( <i>Pyrgulopsis merriami</i> )	NLD					S						S																							
<i>Pyrgulopsis protea</i>	Not known																																S		
<i>Pyrgulopsis</i> species <sup>7</sup>	Not known																										S			S	S				
Southern Steptoe springsnail ( <i>Pyrgulopsis sulcata</i> )	BLM																									S									
Spring Mountains springsnail ( <i>Pyrgulopsis deaconi</i> )	BLM, NVP	S																																	

**Table 4-1 Special Status Aquatic Species in the Project Study Area**

<b>Aquatic Species</b>	<b>Status</b>	*Las Vegas Valley <sup>1</sup>	*Garnet Valley <sup>2</sup>	*Hidden Valley (North) <sup>2</sup>	*Coyote Spring Valley <sup>2</sup>	*Pahranagat Valley <sup>2</sup>	*Delamar Valley <sup>2</sup>	*Dry Lake Valley <sup>2</sup>	*Cave Valley <sup>2</sup>	Kane Springs Valley <sup>2</sup>	Pahroc Valley <sup>2</sup>	White River Valley <sup>2</sup>	Muddy River Springs Area <sup>2</sup>	Lower Moapa Valley <sup>2</sup>	California Wash <sup>2</sup>	Black Mountains Area	*Lake Valley <sup>3</sup>	Patterson Valley <sup>3</sup>	Spring Valley (basin #201) <sup>3</sup>	Eagle Valley <sup>3</sup>	Panaca Valley <sup>3</sup>	Lower Meadow Valley Wash <sup>3</sup>	Dry Valley <sup>3</sup>	Clover Valley <sup>3</sup>	Rose Valley <sup>3</sup>	*Steptoe Valley <sup>4</sup>	*Snake Valley <sup>5</sup>	*Spring Valley (basin #184) <sup>5</sup>	*Hamlin Valley <sup>5</sup>	Fish Springs Flat <sup>5</sup>	Tule Valley <sup>5</sup>	Pine Valley <sup>5</sup>	Wah Wah Valley <sup>5</sup>	Deep Creek Valley <sup>5</sup>					
Sub-Globose snake springsnail ( <i>Pyrgulopsis saxatilis</i> )	P, UTSC																																						
Sub-Globose Steptoe Ranch springsnail ( <i>Pyrgulopsis orbiculata</i> )	BLM																																						
Toquerville springsnail ( <i>Pyrgulopsis kolobensis</i> )	P											S																											
Transverse gland springsnail ( <i>Pyrgulopsis cruciglans</i> )	NVD																																						
Utah physa <sup>6</sup> ( <i>Physella utahensis</i> )	UTSC																																						
White River Valley springsnail ( <i>Pyrgulopsis sathos</i> )	NLD											S																											
<b>Amphibians</b>																																							
Arizona toad ( <i>Bufo microscaphus</i> )	BLM, UTSC	S													S																								
Columbia spotted frog ( <i>Rana luteiventris</i> )	NVP, UTSC, CA																																						
Northern leopard frog ( <i>Rana pipiens</i> )	P, BLM, NVP					S			S			S																											
Relict leopard frog ( <i>Rana onca</i> )	C, NVP, CA															S																							

\*A basin that has ROW and / or groundwater exploratory area(s).

<sup>1</sup>Las Vegas Wash Flow System.

<sup>2</sup>White River Flow System.

<sup>3</sup>Meadow Valley Wash Flow System.

<sup>4</sup>Goshute Valley Flow System.

<sup>5</sup>Salt Lake Desert Flow System.

<sup>6</sup>Potential occurrence near Fish Springs was based on shells. Identification was not confirmed.

<sup>7</sup>Collected from Tule Springs; potential new species.

R = Species is present in the ROW; E = Species is present in one or more of the groundwater exploratory areas; and S = reasonable expectation of occurrence in basin based on best available knowledge by wildlife management agencies.

Status: FE = Federally endangered; FT = Federally threatened; C = candidate; P = petitioned for federal listing; BLM = BLM sensitive species; NVP = Nevada Protected; NLD = No special status but species has limited distribution in Nevada; UTSC = Utah Special Concern; CA = Conservation agreement species;

USFS = Forest Service sensitive species; and GF = game fish species.

**Table 4-2 Game Fish Species in the Region of Study**

Waterbodies in Hydrographic Basins Inhabited by Game Fish Species <sup>1</sup>	Game Fish Species													
	Bullhead Species	Channel Catfish	Green Sunfish	Bluegill	Largemouth Bass	Cutthroat Trout	Bonneville Cutthroat Trout	Lahontan Cutthroat Trout	Rainbow Trout	White Crappie	Brook Trout	Brown Trout	Trout Hybrids	Sacramento Perch
<b>*Las Vegas Valley<sup>2</sup></b>														
Floyd Lamb State Park Pond		X	X	X	X				X					
Lorenzi Park Pond		X			X				X					
Sunset Park Pond		X		X	X				X					
<b>*Pahranagat Valley<sup>3</sup></b>														
Nesbit Lake	X				X									
Upper Pahranagat Lake	X		X		X				X					
<b>White River Valley<sup>3</sup></b>														
Adams-McGill Reservoir					X				X					
Cold Springs Reservoir	X				X				X					
Dacey Reservoir					X				X					
Haymeadow Reservoir	X				X				X					
White River									X			X		
Ellison Creek									X					
Forest Home Creek												X		
<b>Lower Moapa Valley<sup>3</sup></b>														
Bowman Reservoir				X	X									
Muddy River	X	X			X									
<b>*Lake Valley<sup>4</sup></b>														
Geyser Creek									X		X			
North Creek									X		X			
<b>Spring Valley (basin #201)<sup>4,7</sup></b>														
Eagle Valley Reservoir									X			X	X	
Meadow Valley Creek / Camp Valley Creek									X			X		
<b>Eagle Valley<sup>4,7</sup></b>														
Meadow Valley Creek / Camp Valley Creek									X			X		
<b>Panaca Valley<sup>4,7</sup></b>														
Condor Canyon									X					
Eagle Valley Reservoir									X					
<b>Dry Valley<sup>4,7</sup></b>														
Echo Canyon Reservoir					X				X	X				
<b>Lower Meadow Valley Wash<sup>4,7</sup></b>														
Meadow Valley Wash									X					
<b>Rose</b>														
Echo Canyon Reservoir					X				X	X				
<b>Clover Valley<sup>4</sup></b>														
Clover (Big Springs) Creek									X					
<b>*Steptoe Valley<sup>5</sup></b>														
Bassett Lake					X									
Berry Creek									X			X		
Big Indian Creek									X		X			

**Table 4-2 Game Fish Species in the Region of Study**

Waterbodies in Hydrographic Basins Inhabited by Game Fish Species <sup>1</sup>	Game Fish Species													
	Bullhead Species	Channel Catfish	Green Sunfish	Bluegill	Largemouth Bass	Cutthroat Trout	Bonneville Cutthroat Trout	Lahontan Cutthroat Trout	Rainbow Trout	White Crappie	Brook Trout	Brown Trout	Trout Hybrids	Sacramento Perch
Bird Creek									X		X			
Cave Creek									X		X	X		
Cave Lake									X		X	X		
Cherry Creek									X					
Comins Lake	X				X				X			X		
Duck Creek					X				X		X	X		
Duck Creek Reservoir									X			X		
East Creek									X					
Egan Creek									X					
Goshute Creek							X							
Mattier Creek									X		X			
Monte Neva Hot Springs					X									
North Creek									X					
Steptoe Creek									X		X	X		
Steptoe Ranch					X									
Tailings Creek											X			
Timber Creek									X		X			
Willow Creek									X			X		
*Snake Valley <sup>6</sup>														
Baker Creek									X		X	X	X	
Baker Lake								X	X		X		X	
Basin Creek							X							
Big Springs Creek									X					
Big Wash							X							
Birch Creek							X							
Cottonwood Creek							X							
Deadman Creek							X							
Deep Canyon Creek							X							
Granite Creek							X		X					
Hampton Creek							X							
Hendry's Creek							X							
Indian Farm Creek							X							
Lehman Creek									X		X	X	X	
Mill Creek							X							
North Fork of Birch Creek							X							
Preuss Lake														X
Red Cedar Creek							X							
Sacramento Pass Pond									X					
SF Baker Creek							X							
Silver Creek†						X			X			X		
Silver Creek Reservoir									X			X		
Smith Creek							X							
Snake Creek							X		X			X		
South Fork Big Wash							X							
Strawberry Creek							X							

**Table 4-2 Game Fish Species in the Region of Study**

Waterbodies in Hydrographic Basins Inhabited by Game Fish Species <sup>1</sup>	Game Fish Species													
	Bullhead Species	Channel Catfish	Green Sunfish	Bluegill	Largemouth Bass	Cutthroat Trout	Bonneville Cutthroat Trout	Lahontan Cutthroat Trout	Rainbow Trout	White Crappie	Brook Trout	Brown Trout	Trout Hybrids	Sacramento Perch
Trout Creek							X							
Tom's Creek							X							
Upper Snake Creek							X							
*Spring Valley (basin #184) <sup>6</sup>														
Bassett Creek									X					
Bastian Creek									X			X		
Board Creek													X	
Cleve Creek									X			X		
Eightmile Creek									X					
Kalamazoo Creek									X			X		
McCoy Creek									X			X	X	
Meadow Creek												X		
Muncy Creek									X		X		X	
Odgers Creek									X					
Piermont Creek												X		
Pine Creek							X							
Ridge Creek							X							
Seigel Creek									X					
Shingle Creek									X			X	X	
Sunkist (North) Creek											X			
Taft Creek, South Taft Canyon									X		X			
Vipont (Stephens) Creek									X					
Williams Creek									X				X	
Willard Creek									X				X	
Deep Creek Valley <sup>6</sup>														
Dad's Creek							X							
Fifteen Mile Creek							X							
Johnson Creek (South Fork)							X							
Sam's Creek							X							
Spring Creek							X							
Steve Creek							X							

\*A basin that has ROW and / or groundwater exploratory area(s).

† = Stream considered a possible reintroduction site for Bonneville cutthroat trout.

<sup>1</sup>Basins with no game fisheries: Garnet, Hidden Valley (North), Coyote Spring, Delamar, Dry Lake, Cave Valley, Kane Springs, Pahroc, Muddy River Springs, California Wash, Patterson, Hamlin, Fish Springs Flat, Tule, Pine, and Wah Wah.

<sup>2</sup>Las Vegas Wash Flow System.

<sup>3</sup>White River Flow System.

<sup>4</sup>Meadow Valley Wash Flow System.

<sup>5</sup>Goshute Valley Flow System.

<sup>6</sup>Salt Lake Desert Flow System.

<sup>7</sup>Drainages are part of Upper Meadow Valley.

**Table 4-3 Special Status Fish<sup>1</sup>, Amphibian, and Springsnail Occurrences in Springs and Streams**

<b>Valley/Spring or Stream Name</b>	<b>Species or Groups</b>
<b>Deep Creek</b>	
Spring in Spring Creek	Springsnails
Lower Sanford Spring	Springsnails
Springs in West Deep Creek	Springsnails
Unnamed wetlands in valley floor	Columbia spotted frog, springsnails
<b>Tule Valley</b>	
Coyote Springs	Columbia spotted frog
South Tule Spring	Columbia spotted frog
Tule Spring	Columbia spotted frog, springsnails
Willow Spring	Columbia spotted frog
<b>Hamlin Valley</b>	
Unnamed spring complex east of White Rock Cabin Springs	Springsnails
<b>Fish Springs Flat</b>	
Crater Spring	Northern leopard frog, springsnails
House Spring	Northern leopard frog, springsnails
Lost Spring	Utah chub, northern leopard frog, springsnails
Mallard Pool	Springsnails
Middle Spring	Springsnails
Mirror Spring	Springsnails
North Springs	Utah chub, springsnails
Painter Spring	Springsnails
Percy Spring	Utah chub, northern leopard frog
Pintail/Ibis Waterfowl Units	Least chub, northern leopard frog
Sinbad Spring	Springsnails
South Spring	Utah chub, northern leopard frog, springsnails
Thomas Spring	Utah chub, springsnails
<b>Spring Valley (#184)</b>	
Blind Spring	Springsnails
Cedar Springs	Northern leopard frog
Springs in Cleve Creek	Springsnails
Keegan Ranch North and South Springs	Relict dace, northern leopard frog
Minerva Spring Complex	Utah chub, northern leopard frog, springsnails
North Millick Spring	Northern leopard frog
Shoshone Ponds	Pahrump poolfish, relict dace, northern leopard frog
South Millick Spring	Northern leopard frog
Spring Valley Creek	Relict dace
Stonehouse Spring Complex	Relict dace, springsnails
Turnley/Woodsman Spring	Springsnails
Unnamed Minerva # 1	Utah chub, springsnails
Unnamed Minerva # 2 and 3	Springsnails
Unnamed spring east of Cleve Creek	Springsnails
Unnamed spring Stonehouse Ranch	Relict dace, springsnails
West Valley Spring Complex 1	Northern leopard frog, springsnails
West Valley Spring Complex 5	Northern leopard frog
Willow Spring	Springsnails
<b>Snake Valley</b>	
Beck Springs North	Columbia spotted frog, springsnails
Big Springs	Springsnails

**Table 4-3 Special Status Fish<sup>1</sup>, Amphibian, and Springsnail Occurrences in Springs and Streams**

<b>Valley/Spring or Stream Name</b>	<b>Species or Groups</b>
Big Springs Creek	Springsnails, redbside shiner, speckled dace, mottled sculpin, Utah chub, Utah sucker
Bishop Spring/Foote Reservoir	Least chub
Caine Spring	Springsnails
Callao Spring	Springsnails
Clay Spring	Springsnails
Cold Spring	Springsnails
Gandy Salt Marsh Middle	Columbia spotted frog, least chub, speckled dace
Gandy Salt Marsh North	Columbia spotted frog, least chub
Gandy Warm Springs	Northern leopard frog
Knoll Springs	Springsnails
Leland Harris Springs	Least chub, Columbia spotted frog, springsnails
Miller Spring	Least chub, springsnails, Columbia spotted frog
Outhouse Spring	Springsnails
Outlet Spring	Springsnails
Pneuss Lake	California floater
Redden Spring	Springsnails, California floater
Springs in Schell Creek	Springsnails
Springs in Snake Creek	Springsnails
South Fork Big Wash	Redside shiner, mottled sculpin, speckled dace
Strawberry Creek	Redside shiner, mottled sculpin, speckled dace
Twin Springs	Least chub, Columbia spotted frog, northern leopard frog
Warm Springs	Springsnails
Willow Patch Spring	Springsnails
Unnamed Big Spring # 1	Springsnails
Unnamed spring south of Caine Spring	Springsnails
Unnamed spring northwest of Clark Spring	Springsnails
<b>Steptoe Valley</b>	
Cordano/Murphy/Dolan Ranch Springs	Relict dace
Flat Spring	Springsnails
Grass Springs/Lusetti Ranch	Relict dace, northern leopard frog
Springs north of Grass Springs	Springsnails
Indian Ranch (unnamed springs)	Springsnails
McGill/Dairy Ranch Spring	Relict dace
Murray Creek	Relict dace
Murray Creek/Georgetown Ranch	Relict dace
Steptoe Ranch Springs	Relict dace, springsnails
Steptoe Valley Wildlife Management Area springs	Relict dace
Unnamed spring (east of Borchart Spring)	Northern leopard frog
<b>Clover Valley</b>	
Clover Creek	Meadow Valley Wash desert sucker, Meadow Valley Wash speckled dace
North Spring	Springsnails
<b>Dry Valley</b>	
Upper Meadow Valley Wash	Meadow Valley Wash desert sucker, Meadow Valley speckled dace
<b>Cave Valley</b>	
Parker Station springs	Springsnails

**Table 4-3 Special Status Fish<sup>1</sup>, Amphibian, and Springsnail Occurrences in Springs and Streams**

<b>Valley/Spring or Stream Name</b>	<b>Species or Groups</b>
<b>Lower Meadow Valley Wash</b>	
Lower Meadow Valley Wash	Meadow Valley Wash desert sucker, Meadow Valley Wash speckled dace
<b>Panaca Valley</b>	
Bennett Springs	Springsnails
Condor Canyon (Upper Meadow Valley Wash)	Big Spring spinedace, Meadow Valley Wash desert sucker, Meadow Valley Wash speckled dace
Highland Springs	Springsnails
Panaca Big Springs	Springsnails
<b>Eagle Valley</b>	
Eagle Valley Creek (Upper Meadow Valley Creek)	Meadow Valley Wash desert sucker, Meadow Valley Wash speckled dace
<b>Spring Valley (#201)</b>	
Camp Valley Creek	Meadow Valley Wash desert sucker, Meadow Valley Wash speckled dace
<b>Lake Valley</b>	
Brown Springs	Springsnails
Wamboldt Spring Complex	Northern leopard frog, springsnails
Geyser Spring	Northern leopard frog
<b>Black Mountains Area</b>	
Blue Point Springs	Relict leopard frog, springsnails
Rogers Springs	Relict leopard frog, springsnails
<b>Lake Valley</b>	
Wambolt Springs	Springsnails
<b>Lower Moapa Valley</b>	
Muddy River	Moapa speckled dace
<b>California Wash</b>	
Muddy River	Virgin River chub, Moapa speckled dace
<b>Muddy River Springs</b>	
Apcar Spring	Moapa dace, Moapa White River springfish, springsnails
Cardy Lamb Spring	Springsnails
Moapa National Refuge	Moapa dace, Moapa White River springfish, springsnails
Muddy River	Moapa dace, Moapa speckled dace, Virgin River chub
<b>White River Valley</b>	
Arnoldson Spring	Preston White River springfish, White River speckled dace, springsnails
Baker Spring	White River speckled dace
Butterfield Spring	White River speckled dace, White River sculpin, springsnails
Camp Spring	White River speckled dace, springsnails
Ellison Creek	White River speckled dace
Emigrant Springs	White River speckled dace, springsnails
Flag Springs	White River spinedace, White River desert sucker, White River speckled dace, springsnails
Hardy Spring	White River speckled dace, springsnails
Hot Creek Spring	Moorman White River springfish, springsnails
Indian Spring	White River spinedace, Preston White River springfish, White River desert sucker, White River speckled dace, springsnails
Lund Town Spring	White River desert sucker, White River speckled dace, springsnails
Moon River Spring	Moorman W. River springfish, springsnails

**Table 4-3 Special Status Fish<sup>1</sup>, Amphibian, and Springsnail Occurrences in Springs and Streams**

<b>Valley/Spring or Stream Name</b>	<b>Species or Groups</b>
Moorman Spring	Moorman White River springfish, springsnails
Nicholas Spring	Preston White River springfish, springsnails
Preston Big Spring	Preston White River springfish, White River speckled dace, springsnails
Ruppos Bog Hole	Springsnails
Shingle Pass Spring	Springsnails
Silver Springs	Springsnails
Sunnyside Creek	White River desert sucker, White River speckled dace
Sunnyside Creek Spring South	White River desert sucker, White River speckled dace
Sunnyside Creek Spring Upper	White River spinedace, White River desert sucker, White River speckled dace
Tin Can Spring	White River speckled dace, springsnails
Unnamed near Highway 6	Springsnails
White River	White River desert sucker, White River speckled dace, northern leopard frog
<b>Dry Lake Valley</b>	
Meloy Spring	Springsnails
<b>Delamar Valley</b>	
Grassy Spring	Hydrobiid snails
<b>Pahranagat Valley</b>	
Ash Spring	White River springfish, springsnails
BLM Spring 33	Springsnails
Brownie/Deacon Spring	Pahranagat speckled dace, springsnails
Cottonwood Springs	Pahranagat speckled dace, springsnails
Crystal Spring	Hiko White River springfish, Pahranagat speckled dace, springsnails
Hiko Spring	Hiko White River springfish, springsnails
Hoyt Spring	Springsnails
Pahranagat Creek	Pahranagat roundtail chub, Pahranagat speckled dace, White River springfish, northern leopard frog
L Spring	Northern leopard frog
Lone Tree Spring	Springsnails
Maynard Spring	Northern leopard frog
<b>Las Vegas</b>	
Corn Creek Springs	Pahrump poolfish, springsnails
Harris Springs	Springsnails
LaMadre Spring	Springsnails
Lost Spring	Springsnails
Red Spring	Springsnails
Wilson Spring	Springsnails

<sup>1</sup>The occurrence of Bonneville cutthroat trout is provided in **Table 4-2**.

Sources: BIO-WEST 2007; Hershler 1998; Sada 2007b; and NDOW shapefile for northern leopard frog (NDOW 2006).

## 5.0 Soils

### 5.1 Overview

The vegetation section provides information on the types of soils that occur within the project study area. Soils will be characterized at two levels (i.e., the study areas described in Chapter 1.0). The first level will describe soil resources that may be directly impacted by construction activities within the ROW/groundwater exploratory areas, and includes discussions on soil characteristics such as erosion prone soils, low reclamation potential soils, soils shallow to bedrock, and hydric soils. The second level will characterize soil resources that may be indirectly impacted by groundwater drawdown within the region of study. Hydric soils will be the focus of the discussion in the region of study.

Based on results from public scoping and input from the BLM Interdisciplinary Team, the following issues or concerns were identified for soils:

- Potential effects of project disturbance on erosion prone soils and whether the project could contribute to sand dunes;
- Potential changes in soils structure that could alter moisture retention and productivity;
- Potential for trenching that could interrupt subsurface water flow by disturbing impervious soil layers;
- Potential effects of groundwater drawdown on soil moisture availability;
- Potential mitigation and monitoring for soil impacts (e.g., areas with reclamation difficulties);
- Potential effects of project disturbance on biotic crusts; and
- Potential effects of project construction on areas with contaminated soils.

### 5.2 Affected Environment Information

Major Land Resource Areas (MLRAs) will be used to provide a general overview of soils. The soil baseline characterization for the Proposed Action and alternatives is based on Soil Survey Geographic (SSURGO) database review and analyses. SSURGO is the most detailed level of soil mapping done by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (USDA NRCS 2007a; various years). SSURGO data are not available where soil surveys have not yet been completed. U.S. General Soil Map (STATSGO) (USDA NRCS 2007b) data are used for those areas where SSURGO data are unavailable.

The STATSGO dataset was created by generalizing more detailed soil survey maps. Where more detailed soil survey maps were not available, data on geology, topography, vegetation, and climate were assembled, together with Land Remote Sensing Satellite images. Soils of like areas were studied, and the probable classification and extent of the soils were determined.

Predominant soil types will be identified within the ROW and an assessment of erosion prone soils, compaction prone soils, low reclamation potential soils, and hydric soils will be completed. Biological soil crusts also will be included because they are an important component in dry arid ecosystems. They provide soil stability, prevent erosion, fix nitrogen, and increase infiltration rates. Project disturbance effects on soil crusts will be assessed at a more general level because specific location information is limited. Soil sampling results for radionuclide levels also will be discussed.

STATSGO also was used to characterize soils within the proposed exploratory areas and region of study. Because exact well locations have not yet been determined, a general overview is provided with additional focus being given to sensitive soils in the exploratory areas and hydric soils in the region of study.

Key information sources include Land Resource Regions and MLRAs of the United States, the Caribbean, and the Pacific Basin (USDA NRCS 2006) and the MLRA Geographic Database (USDA NRCS 1997). The data generated from the SSURGO/STATSGO databases will be key sources of information on soil characteristics along the ROW. The Preliminary Geotechnical Data Report for the White Pine, Lincoln, and Clark counties, Nevada (Converse Consultants 2007) will provide information on radionuclide analyses within the ROW.

### 5.3 Data Gaps

No data gaps were identified for soils.

### 5.4 Project Area Occurrence

**Map 5-1** displays the various soil survey areas crossed by the ROW. **Table 5-1** summarizes soil characteristics within the ROW, temporary workspace areas, and facilities in terms of acres by soil survey area. Important characteristics in the affected environment description include low reclamation potential, erosion prone, compaction prone, and hydric soils. The actual amount of soils that would be disturbed within the ROW would be a fraction of that shown in **Table 5-1**. The actual amount is not known because the exact pole placement associated with the power line and access roads and routes have not been determined at this time.

**Table 5-1 Acres of Soil Characteristics Within the ROW for Proposed Action and Alternatives**

Soil Survey Area	Severe Erosion Potential		Low Reclamation Potential	Compaction Prone	Hydric	Shallow Bedrock <sup>1</sup>	Prime Farmland <sup>2</sup>
	Wind Erosion	Water Erosion					
NV608	0	20	1,373	201	0	679	0
NV611	19	46	238	0	0	84	0
NV754	89	76	2,337	402	0	215	721
NV755	0	0	82	0	0	19	0
NV779	9	154	2,967	76	10	60	76
NV780	0	140	358	93	0	31	1
NV784	258	283	5,354	1,594	42	47	1,659
NV788	0	0	125	0	0	0	0
STATSGO <sup>3</sup>	0	88	406	67	0	93	0
<b>Total</b>	<b>375</b>	<b>807</b>	<b>13,240</b>	<b>2,433</b>	<b>52</b>	<b>1,227</b>	<b>2,458</b>

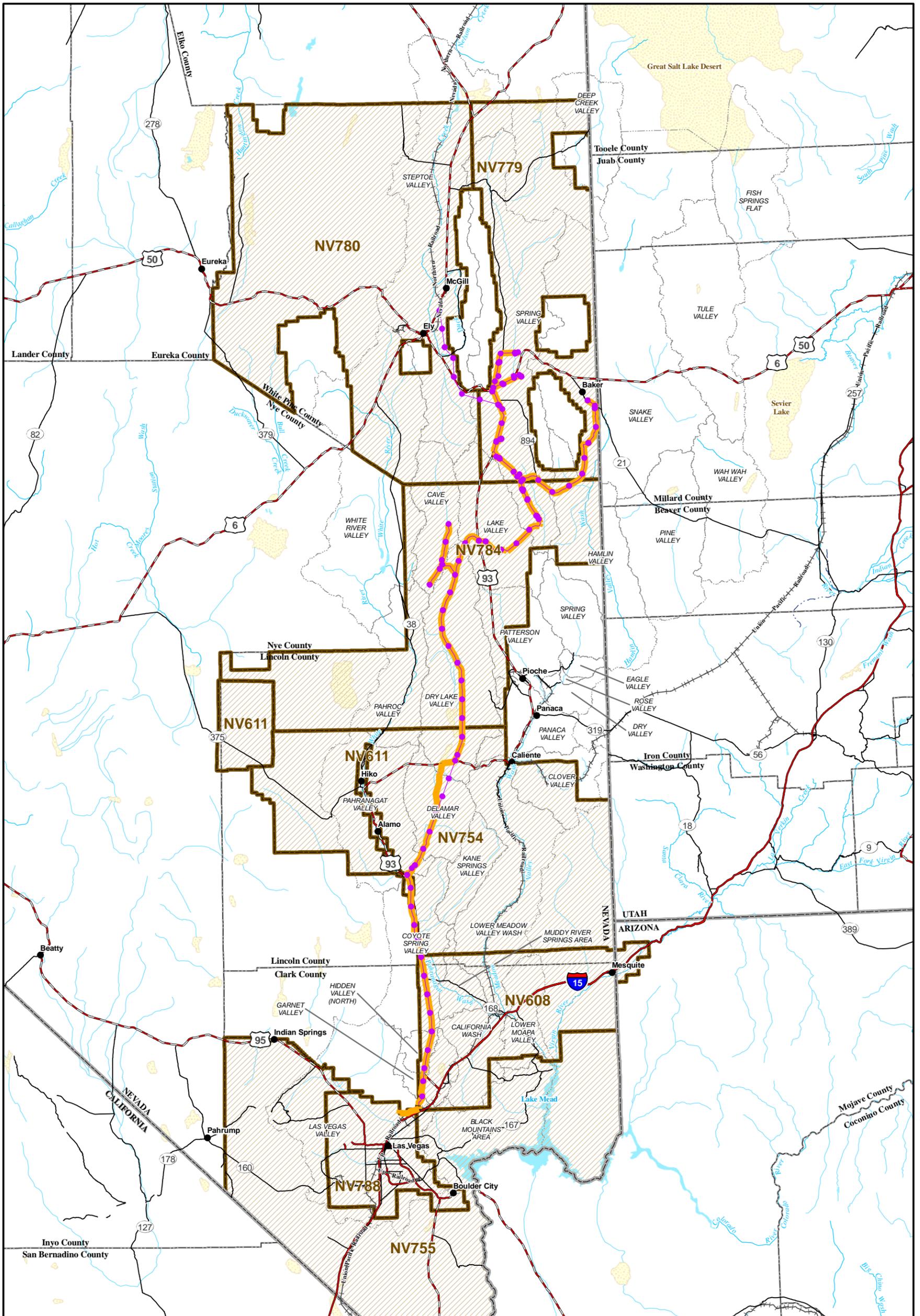
<sup>1</sup>Shallow Bedrock soils were identified by querying the SSURGO database for component soil series that have a bedrock contact listed above 60 inches in depth.

<sup>2</sup>These soils have the capability to be prime farmland, but have not yet been developed for irrigated agriculture uses.

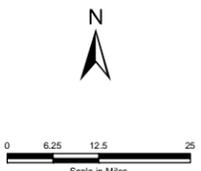
<sup>3</sup>Used where SSURGO data not available.

Source: USDA NRCS 2007a.

Low reclamation potential soils consist of soils that have been identified as saline, sodic, strongly alkaline/acid, and/or those with sensitive vegetation associations that have demonstrated poor reclamation in the past. The USDA NRCS defines prime farmland as land that has the best combination of physical and chemical characteristics for producing crops. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. Only 1.3 acres of soil are classified as Prime Farmlands along the ROW. The NRCS defines a hydric soil as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. These soils are commonly associated with floodplains, lake plains, and basin plains, and are associated with riparian areas, wetlands, springs, and seeps. NV784 covers the central portion of the study area and has the highest concentration of hydric, erosion prone, compaction prone, and low reclamation potential soils in the study area.



- City or Town
- Proposed Power Line
- Proposed Pipeline
- Interstate Highway
- State Highway
- Major Road
- Railroad
- State Boundary
- ▭ NRCS SSURGO SOIL SURVEY AREA
- ▭ Hydrographic Basins
- River or Creek
- Intermittent Stream
- Canal or Aqueduct
- ▭ Lake or Reservoir
- ▭ Dry Lake



**Proposed Clark, Lincoln, and White Pine Counties Groundwater Development Project**

**Map 5-1**  
**ROW with Soil Survey Areas**

Radionuclide testing was conducted to investigate the possibility of radioactivity in the soils due to airborne transport of particulates associated with nuclear testing conducted at the Nevada Test Site in the 1950s and 1960s. Soil was collected at 21 select sites along the proposed ROW for radionuclide analysis. Forty-seven surface and subsurface samples were submitted and analyzed for Cesium-137 (Cs-137) by spectral analysis of gamma radiation. Cs-137 is a radioactive product that does not occur naturally, and is specific to nuclear testing. The results indicate that any fallout from nuclear testing conducted in the past has decayed to low levels that are not considered harmful to human health (Converse Consultants 2007).

The exploratory areas and flow systems fall within four different MLRAs; MLRA 28A, the Great Salt Lake Area; MLRA 28B, the Central Nevada Basin and Range; MLRA 29, Southern Nevada Basin and Range; and MLRA 30, Mohave Basin and Range (**Maps 5-2 and 5-3**) (USDA NRCS 2006). Each of these MLRAs have one or more of the following soil orders: Aridisols, Entisols, and Mollisols. Aridisols are soils that develop in dry arid ecosystems. Entisols lack soil development. Mollisols have a thick, dark, fertile surface layer.

### **Great Salt Lake Area (MLRA 28A)**

The dominant soil orders in MLRA 28A are Aridisols, Entisols, and Mollisols. The soils in the area dominantly have a mesic or frigid soil temperature regime, an aridic or xeric soil moisture regime, and mixed mineralogy. They generally are well drained or somewhat excessively drained, loamy or loamy skeletal, and very deep. Approximately 3,207,021 acres of the Salt Lake Desert flow system and approximately 68,437 acres of the Meadow Valley Wash Flow System occur within this MLRA.

### **Central Nevada Basin and Range (MLRA 28B)**

The dominant soil orders in MLRA 28B are Aridisols, Entisols, and Mollisols. The soils in the area dominantly have a mesic soil temperature regime, an aridic or xeric soil moisture regime, and mixed or carbonatic mineralogy. They generally are well drained, loamy or loamy-skeletal, and shallow to very deep. Approximately 1,248,647 acres of the Goshute Valley Flow System and approximately 844,579 acres of the Meadow Valley Wash Flow System occur within this MLRA. Approximately 2,296,743 acres of the Salt Lake Desert Flow System occur within this MLRA. Approximately 1,248,647 acres of the Goshute Valley Flow System and approximately 1,440,198 acres of the White River Flow System occur within this MLRA.

### **Southern Nevada Basin and Range (MLRA 29)**

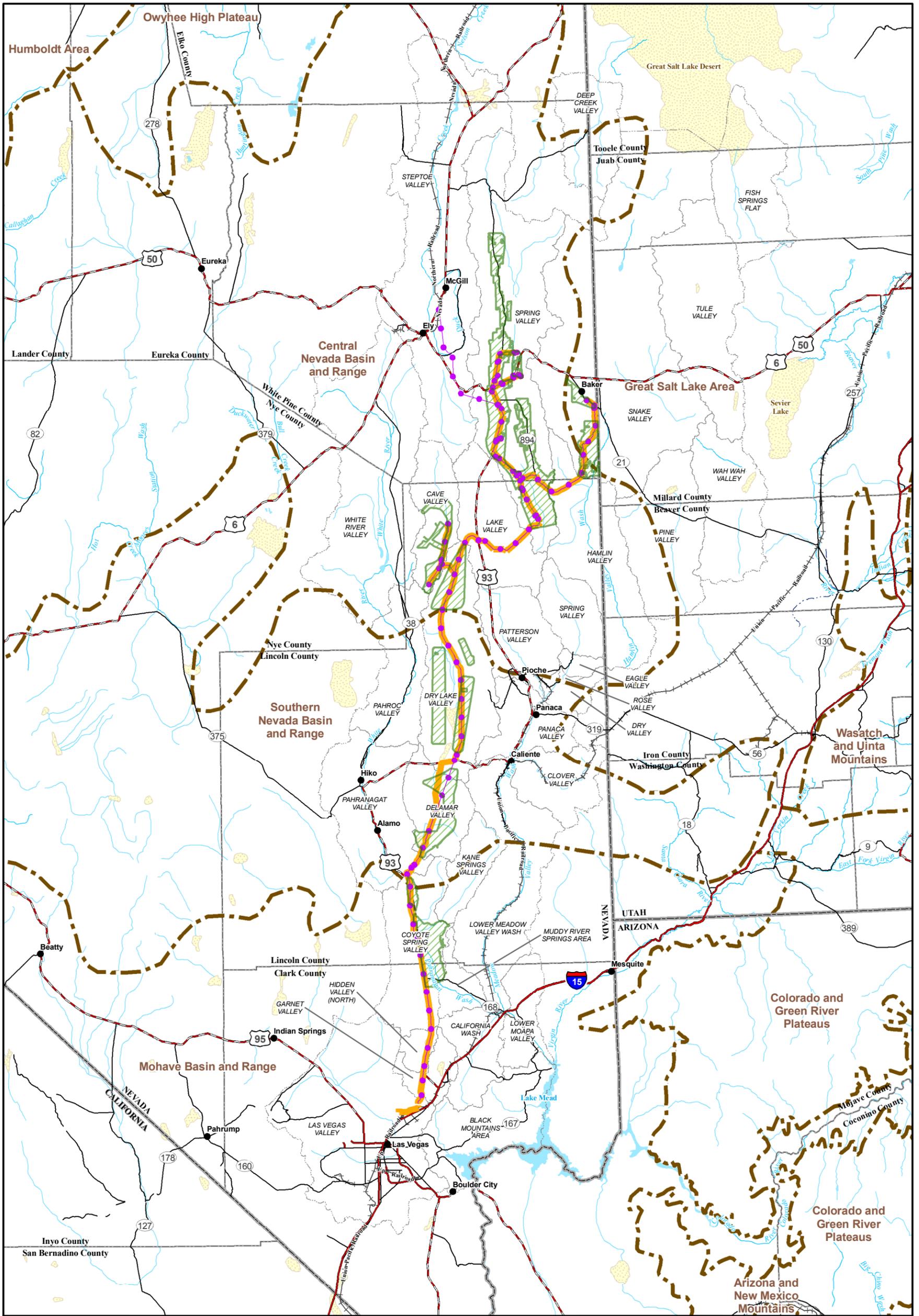
The dominant soil orders in MLRA 29 are Aridisols and Entisols. Mollisols also are important in the mountainous areas. The soils in the area dominantly have a mesic soil temperature regime, an aridic or xeric soil moisture regime, and mixed mineralogy. They generally are very shallow to very deep, well drained or somewhat excessively drained, and loamy-skeletal or sandy-skeletal. Approximately 669,939 acres of the Meadow Valley Wash Flow System and 1,497,314 acres of the White River Flow System occur within this MLRA.

### **Mohave Basin and Range (MLRA 30)**

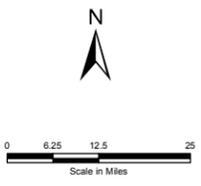
The dominant soil orders in MLRA 30 are Aridisols and Entisols. The soils in the area dominantly have a thermic soil temperature regime, an aridic soil moisture regime, and mixed or carbonatic mineralogy. They generally are well drained to excessively drained, loamy-skeletal or sandy-skeletal, and shallow to very deep. Approximately 987,568 acres of the Las Vegas Flow System, 401,157 acres of the Meadow Valley Wash Flow System, and 1,109,604 acres of the White River Flow System occur within this MLRA.

Soils associated with water features will be examined for the analysis of the flow basins. Soils such as Cumulic Haplaquolis, Devilsgait, Kolda, and Playas have hydric conditions (i.e., saturated with water). They occur on floodplains, lake plains, and basin plains, and are associated with riparian areas, wetlands, springs, and seeps.

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- City or Town
- ▨ Exploratory Area
- Proposed Power Line
- Proposed Pipeline
- Interstate Highway
- State Highway
- Major Road
- Railroad
- ▭ State Boundary
- ▭ Major Land Resource Area
- ▭ Hydrographic Basins
- River or Creek
- Intermittent Stream
- Canal or Aqueduct
- Lake or Reservoir
- Dry Lake

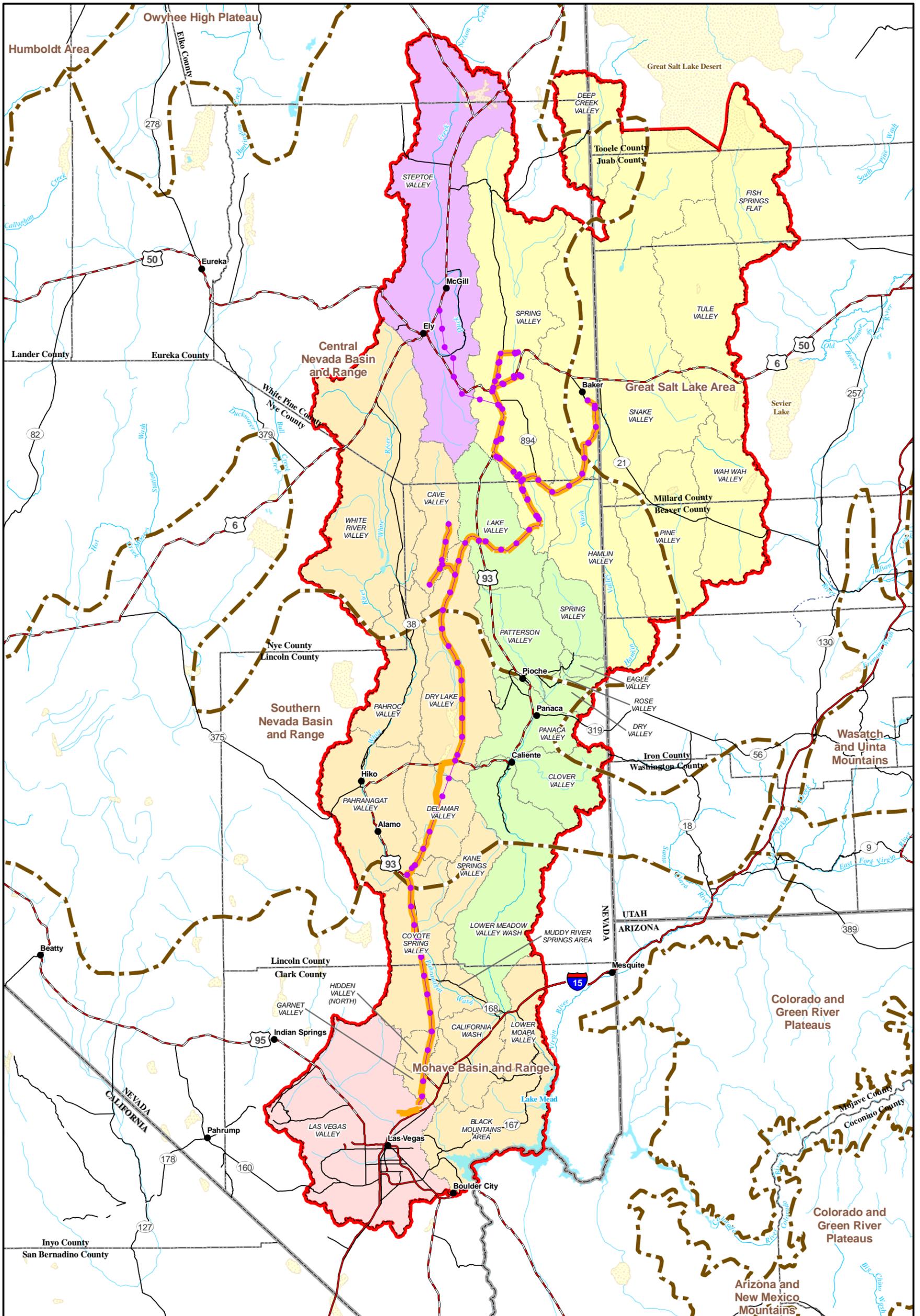


Proposed Clark, Lincoln, and White Pine Counties Groundwater Development Project

**Map 5-2**

**Major Land Resource Areas and Exploratory Areas**

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	<ul style="list-style-type: none"> <li>● City or Town</li> <li>— Proposed Power Line</li> <li>— Proposed Pipeline</li> <li>— Interstate Highway</li> <li>— State Highway</li> <li>— Major Road</li> <li>— Major Land Resource Area</li> <li>— Flow Basin Study Area</li> </ul>	<ul style="list-style-type: none"> <li>— State Boundary</li> <li>— County Boundary</li> <li>— Hydrographic Basins</li> <li>— River or Creek</li> <li>— Intermittent Stream</li> <li>— Canal or Aqueduct</li> <li>— Lake or Reservoir</li> <li>— Dry Lake</li> </ul>	<p><b>Hydrographic Basins</b></p> <p><b>Flow System</b></p> <ul style="list-style-type: none"> <li>— Goshute Valley</li> <li>— Las Vegas Wash</li> <li>— Meadow Valley Wash</li> <li>— Salt Lake Desert</li> <li>— White River</li> </ul>	<p style="text-align: center;">N</p> <p style="text-align: center;">0 6.25 12.5 25 Scale in Miles</p>	<p style="text-align: center;"><b>Proposed Clark, Lincoln, and White Pine Counties Groundwater Development Project</b></p> <p style="text-align: center;"><b>Map 5-3</b></p> <p style="text-align: center;"><b>Major Land Resource Areas and Flow Systems</b></p>
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## 6.0 EIS Chapter 3.0 Outline

Chapter 3.0 of the EIS describes the affected environment associated with the study areas analyzed for the Proposed Action and alternatives. As discussed in Chapter 1.0 of this report, the physical area or study area boundary for biological resources and soils is shown in **Maps 1-1** and **1-2**. The study areas were defined to help to characterize baseline conditions for analysis of surface disturbance effects within the ROWs and exploratory areas (**Map 1-1**) and indirect effects of groundwater pumping (**Map 1-2**). The affected environment descriptions are based on the best available information and are considered the conditions that currently exist in the project study area. As previously mentioned, the region of study could be revised based on the results of the water resources analysis. The outlines for the Chapter 3.0 sections for biological resources and soils are provided in this section.

## 3.0 INTRODUCTION

### 3.1 Geology

- 3.1.1 Overview
- 3.1.2 Geologic History
  - 3.1.2.1 Late Precambrian to the Middle Paleozoic
  - 3.1.2.2 Middle Paleozoic Through Early Tertiary
  - 3.1.2.3 Middle Through Late Cenozoic
- 3.1.3 Stratigraphy
- 3.1.4 Structural Geology

### 3.2 Soils

- 3.2.1 Overview
- 3.2.2 ROW/Groundwater Exploratory Area2
- 3.2.3 Region of Study

### 3.3 Water Resources

- 3.3.1 Overview
  - 3.3.1.1 Regional Flow Systems
  - 3.3.1.2 Climate
  - 3.3.1.3 Hydrologic Cycle and Conceptual Groundwater Flow
- 3.3.2 Surface Water Resources
  - 3.3.2.1 ROW/Groundwater Exploratory Areas
  - 3.3.2.2 Region of Study
- 3.3.3 Groundwater Resources
  - 3.3.3.1 Hydrogeologic Conditions
  - 3.3.3.2 Groundwater Elevations, Gradients and Potential Flow Directions
  - 3.3.3.3 Groundwater Budget Estimates
- 3.3.4 Water Quality and Stable Isotopes
- 3.3.5 Water Rights and Water Use
  - 3.3.5.1 Hydrologic Study Area
  - 3.3.5.2 Irrigated Acres

### 3.4 Biological Resources

- 3.4.1 Vegetation
  - 3.4.1.1 Overview
  - 3.4.1.2 ROW/Groundwater Exploratory Areas
  - 3.4.1.3 Region of Study
  - 3.4.1.4 Special Status Plant Species
- 3.4.2 Terrestrial Wildlife
  - 3.4.2.1 Overview
  - 3.4.2.2 ROW/Groundwater Exploratory Areas
  - 3.4.2.3 Region of Study
- 3.4.3 Aquatic Resources
  - 3.4.3.1 Overview
  - 3.4.3.2 ROW/Groundwater Exploratory Areas
  - 3.4.3.3 Region of Study

### 3.5 Paleontological Resources

- 3.5.1 Overview
- 3.5.2 ROW/Groundwater Exploratory Areas

- 3.6 Geological Hazards
  - 3.6.1 Overview
  - 3.6.2 Seismicity
  - 3.6.3 Landslides
  - 3.6.4 Subsidence
  
- 3.7 Land Ownership and Use
  - 3.7.1 Land Ownership, Zoning, and Utilities
    - 3.7.1.1 Overview
    - 3.7.1.2 ROW/Groundwater Exploratory Areas
  - 3.7.2 Surface Uses
    - 3.7.2.1 Overview
    - 3.7.2.2 ROW/Groundwater Exploratory Areas
    - 3.7.2.3 Region of Study
  - 3.7.3 Mineral Resources
    - 3.7.3.1 Overview
    - 3.7.3.2 ROW/Groundwater Exploratory Areas
  - 3.7.4 Transportation
    - 3.7.4.1 Overview
    - 3.7.4.2 ROW/Groundwater Exploratory Areas
    - 3.7.4.3 Region of Study
  - 3.7.5 Recreation
    - 3.7.5.1 Overview
    - 3.7.5.2 ROW/Groundwater Exploratory Areas
    - 3.7.5.3 Region of Study
  
- 3.8 Special Management Areas
  - 3.8.1 Overview
  - 3.8.2 ROW/Groundwater Exploratory Areas
    - 3.8.2.1 Special Management Areas
    - 3.8.2.2 ACEC
  - 3.8.3 Region of Study
  
- 3.9 Noise
  - 3.9.1 Overview
    - 3.9.1.1 Statutes and Guidance for Noise
  - 3.9.2 ROW/Groundwater Exploratory Areas
  
- 3.10 Air Quality
  - 3.10.1 Overview
  - 3.10.2 Regulatory Framework
    - 3.10.2.1 Federal Clean Air Act
    - 3.10.2.2 Nevada State Air Quality Program
    - 3.10.2.3 Clark County
  - 3.10.3 Regional Air Quality
  
- 3.11 Visual Resources
  - 3.11.1 Overview
  - 3.11.2 ROW/Groundwater Exploratory Areas
  - 3.11.3 Region of Study

### 3.12 Cultural Resources and Native American Concerns

- 3.12.1 Cultural Resources
  - 3.12.1.1 Overview
  - 3.12.1.2 ROW/Groundwater Exploration
- 3.12.2 Native American Concerns
  - 3.12.2.1 Overview

### 3.13 Socioeconomics and Environmental Justice

- 3.13.1 Overview
- 3.13.2 Population and Demographics
  - 3.13.2.1 Population Trends
  - 3.13.2.2 Migration Trends
  - 3.13.2.3 Projected Long-Term Population Growth
- 3.13.3 Employment, Labor Force, and Economic Structure
  - 3.13.3.1 Farming and Ranching
  - 3.13.3.2 Tourism and Recreation
- 3.13.4 Personal Income and Poverty
- 3.13.5 Housing
- 3.13.6 Public Facilities and Services and Local Government
- 3.13.7 Social Organization and Conditions
  - 3.13.7.1 Historical Context
  - 3.13.7.2 Communities of Place
  - 3.13.7.3 Social Trends
- 3.13.8 Affected Groups
  - 3.13.8.1 Ranchers, Farmers, and Grazing Permittees Operating Within the Study Area
  - 3.13.8.2 Current, Former, and Prospective Future Residents of the Study Area Who Place a High Value On Scenic, Environmental, Recreational, and Social Amenities
  - 3.13.8.3 Outdoor Recreation Users With Interest in the Study Area
  - 3.13.8.4 Tourism and Outdoor Recreation Oriented Businesses Within the Rural Portion of the Study Area
  - 3.13.8.5 Other Businesses and Economic Development Interests Within the Study Area
  - 3.13.8.6 Individuals and Groups Who Give a High Priority to Resource Protection
- 3.13.9 Attitudes and Opinions
  - 3.13.9.1 Rural Portions of the Study Area
  - 3.13.9.2 Las Vegas Valley
- 3.13.10 Environmental Justice
  - 3.13.10.1 Overview

### 3.14 Hazardous Materials and Solid Wastes

- 3.14.1 Overview
  - 3.14.1.1 Regulatory Definitions of Hazardous Material
  - 3.14.1.2 Regulatory Definition of Solid Waste
  - 3.14.1.3 Hazardous Material Use and Solid Waste Generation
- 3.14.2 Hazardous Material Releases at Proposed Exploration Areas and Pipeline Corridors
  - 3.14.2.1 Environmental Incident Databases
  - 3.14.2.2 ROW/Groundwater Exploratory Areas

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## **Appendix A**

### **Cooperating Agency Comments on the Natural Resource Draft Summary Baseline Report**

**Comment Response:**  
**Cooperating Agency Comments on the**  
**Natural Resource Draft Summary Baseline Report**

**GENERAL COMMENTS**

COMMENT #	COMMENT	RESPONSE
NDOW 1	Recommend a description of the link between habitat communities and wildlife assemblages as opposed to the current format of listing plants and wildlife	Habitat communities and wildlife assemblages are addressed in Chapter 3 of the EIS. ENSR/Entrix will add language to the Final Baseline Summary Report explaining this.
FWS 1	We found the summary report several times to be deficient in documenting species occurrences and locations in both Nevada and Utah. For example, both Fish Springs National Wildlife Refuge and Pahrangat National Wildlife Refuge provide extensive habitat for waterfowl and birds, yet this is not reflected in the document. We are particularly concerned that Utah resources are not being adequately addressed despite a great deal of information available on them. A thorough review of all available distribution information should be done before the report is finalized. We have noted some errors below for particular species, but are not confident that this is adequate to address the overall document. We believe this document requires a great deal of additional information and editing and request the ability to review it again before it is finalized.	The occurrence tables were updated with recent information provided by NDOW and UDWR.
USFS 1	In the "Springs Reports" there is the opportunity to include selected springs that had level 1 surveys completed in the Schell Creek Range and the Snake Range. These surveys were completed by the Forest Service in 2006 and selected springs should be included for comparison in the Spring and Snake Valley portions of the "Springs Reports". The Park Service also has completed extensive spring surveys in Great Basin National Park and selected springs from those surveys should also be included as part of this report for comparison of springs located in the valleys to those located on the mountain block.	The main purpose of the baseline characterization report was to inventory and compile hydrologic information from the study area to support development of the regional ground-water flow model. Detailed discussions were provided for selected spring sites within individual hydrographic areas as a means to illustrate the nature of typical settings--the selection of individual springs was limited as one of the main selection criteria was availability of data collected over a relatively long time period to address temporal and seasonal variability. The report documenting the 2006 Forest Service springs inventory was included in Appendix D of Data Volume 3 "Physical Settings of Selected Springs in the Clark, Lincoln, and White Pine Counties Ground-Water Development Project." A review of Appendix D, however, shows that reported field observation records were inadvertently excluded. Most sites are included in existing spring inventories as over 500 springs are identified in Spring Valley and more than 350 springs are identified in Snake Valley. Field observations in the 2006 Forest Service springs inventory will be included in the detailed assessment of environmental conditions prepared as part of the EIS.

## GENERAL COMMENTS

COMMENT #	COMMENT	RESPONSE
UT Counties 1	<p>A baseline is needed for natural resources in the entire area identified as the “Area of Interest” in the Department of Interior’s Stipulated Agreement with SNWA concerning the Nevada Water Engineer’s adjudication of the Spring Valley water applications. In that Stipulated Agreement, BLM’s parent agency Dept of Interior, at arms length together with SNWA, voluntarily and in good faith agreed on the need to protect, monitor and mitigate impacts throughout that entire Area of Interest from impacts due to pumping in Spring Valley. It only stands to reason, therefore, that the impacts to the entire Area of Interest and perhaps more area in Utah, should be studied, monitored and mitigated with respect to pumping in Snake Valley as well as Spring Valley, given that Snake Valley is even closer to the threatened natural resources in Utah. This requires that the natural resources baseline study and report be broadened to include the entire Area of Interest identified in the Stipulated Agreement. It is arbitrary at best for Nevada BLM to not adhere to the Stipulated Agreement’s Area of Interest in formulating this natural resources baseline report. The Counties understand that Utah BLM stands ready, willing and able to assist in broadening the scope to more appropriately include the Utah portion of the Area of Interest in this report. The Counties, as onlookers not privy to the inner workings of the BLM, cannot understand why Utah BLM does not have a bigger role in this regard.</p>	<p>The “Area of Interest” was designated for the SNWA/DOI Spring Valley Stipulated Agreement, which is a separate process from the EIS right-of-way process. The parties to the stipulated agreement had to agree on an “Area of Interest” that would capture all of DOI’s potential concerns within its boundaries pertaining to DOI’s protests of the water rights applications. This area had to be defined prior to the signing of the stipulated agreement.</p> <p>The EIS process for the right-of-way is separate and distinct. The BLM has drafted areas of study for the direct, indirect, and cumulative impacts based on the proposed right-of-way. The water resources analysis currently is being developed, and the area of study defined in the Draft Natural Resources Summary Baseline Report may differ from that analyzed in the EIS as the final area of study will be based on the results of the model.</p> <p>The Nevada Groundwater Projects Office works closely with the BLM Utah State Office and briefs the Utah BLM leadership team quarterly. The point-of-contact participates in conference calls and meetings, and is responsible for distributing review documents to the ID Team members who work in Utah.</p>
UT Counties 2	<p>Part of any reasonable and objective baseline study of natural resources should include a baseline assessment of two items: 1) Establish a baseline measurement of the groundwater table at the deep carbonate rock level at selected locations throughout the Utah side of the Area of Interest (Area of Interest is as defined in the previous comment); 2) Establish a baseline measurement of the flow volume of representative seeps and springs throughout the Utah side of the Area of Interest (as that term is defined above).</p>	<p>The Natural Resources Summary Baseline Report is intended to address baseline conditions relative only to vegetation, wildlife, and soils. The Hydrology Summary Baseline Report is intended to address baseline conditions relative groundwater and surface water.</p> <p>These concerns will be addressed in the hydrology section of Chapter 3.0 of the EIS.</p>
UT Counties 3	<p>The natural resources baseline study should also include Deep Creek Valley, because the BARCASS report indicates a direct hydrological connection between groundwater pumping in the northern part of Spring Valley, and the flow of groundwater through Tippett Valley on into Deep Creek Valley.</p>	<p>The Deep Creek Valley is included in the area of study as defined in the Draft Natural Resources Summary Baseline Report.</p>
UT Counties 4	<p>A proper natural resources baseline study should include a measurement of vegetative conditions all the way to and including the immediate vicinity around the Great Salt Lake, since there is a reasonable theoretical probability that an artificial interruption of groundwater flow in the Great Salt Lake regional flow system could cause impacts all along the flow system until it reaches its terminus at the Great Salt Lake. Currently Salt Lake County is looking at this issue and has some concerns about it. Again, it would make sense for Utah BLM to have a greater role in this regard.</p>	<p>The area of study has not been expanded to the Great Salt Lake at this time. After reviewing the results from the water resources analysis, the area of study may be changed accordingly.</p>

## GENERAL COMMENTS

COMMENT #	COMMENT	RESPONSE
CLARK 1	It will be important to have mapped locales of the species identified as being of concern. Currently the document identifies whether or not the plant or animal species occurs in the project area but not the location of these occurrences.	Due to the large number of species being addressed, a map showing the locales of individual species would likely not be meaningful or easy to read. Rather, the analysis will be handled at the habitat level, which will be easier to display on a map and clearly explained in the text. This will not be incorporated in the Natural Resources Summary Baseline Report, but will be part of the EIS.
CLARK 2	Is some form of indicator species approach to monitoring effects of the proposed development being contemplated, and if so, what are the species?	Indicator species are being considered in the monitoring and mitigation plans being developed for the Stipulated Agreement. These monitoring plans will be recognized in the EIS Monitoring and Mitigation section. The EIS may augment these plans with additional requirements to cover other areas within the EIS area of study. This will be seen in Chapter 4.0 of the EIS, but is beyond the scope of the Natural Resources Summary Baseline Report.
CLARK 3	Aside from the known occupied locales for species of concern, there should be a map of potential habitat. This information would be beneficial in future effects analyses.	The only habitat type that will be used for baseline characterization is vegetation communities. A table of vegetation types will be part of the Final Report, which was derived from GIS vegetation mapping.
CLARK 4	The maps of known and potential habitat should be characterized as to present state of condition (health) and seral state.	Same response as Clark 3.
CLARK 5	The locations of recent large wildland fires should be mapped and their impacts on habitats noted.	The EIS will need to include a discussion about wildfires, proximity to the project alignment, and potential impacts. Shapefiles containing wildfire locations are available and will be utilized in the EIS if necessary.
CLARK 6	Impacts from invasive plant species are of high concern. Mapped locations and extent of infestations of invasive species are needed. These (along with the recent wildfire areas) are likely source populations that could incase the areas disturbed by the project.	Common invasive plant species typically are not subjected to control measures. Management emphasis is placed on control of noxious weeds. Noxious weed occurrences have been tabulated by basin.
CLARK 7	Is any consideration being given to the pretreatment of invasive plant infestations near the pipeline or wellhead locations?	This issue is addressed in the project description and restoration plan. In addition, the BLM will address weed control in the EIS and a pretreatment component may or may not be included.
BIA 1	Within the document, please include reference, where applicable, that consideration has been given to tribal sensitive plant and animal species (i.e. page 2-2, section 2.2.4; page 3-2, section 3.2.2; page 4-2, section 4.2.4). Please also include relevant data where needed and within the tables that have been created.	Letters were sent to the tribes on April 4, 2008 requesting sensitive species lists and location information. The letters will be followed up with phone calls, e-mails, etc. Any information received regarding tribal sensitive species will be included in the EIS.

**GENERAL COMMENTS**

COMMENT #	COMMENT	RESPONSE
BIA 2	<p>The Flow System Study Area (Figure 1-2) differs from the Groundwater Baseline Characterization Report's study area in the region of the Goshute Indian Reservation. The groundwater baseline characterization report's study area included Tippett Valley, but not Deep Creek Valley. The Natural Resources Baseline Report is the opposite (includes Deep Creek Valley, but not Tippett Valley). We would recommend being consistent and include both hydrologic basins in each of the reports. It is understood during further analyses (e.g. groundwater modeling) that the study areas may change, but to ensure Indian trust resources are addressed, both Deep Creek and Tippett Valleys should be included in the initial baseline reports.</p>	<p>The hydrology and natural resources study areas cover different geographic areas due to different resource-specific information and analysis needs. For example, some hydrologic basins are included in the hydrology study area only because they potentially contribute groundwater flow into project basins or flow systems, and that quantity of groundwater input needs to be accounted for in the groundwater modeling. Long, Jakes, and Tippett are all examples of such basins. Tippett Valley is upgradient from Spring Valley. Some researchers have identified groundwater flow from Tippett going into Spring Valley, others have suggested that there is some sort of a hydrologic divide between the basins with flow from Tippett mostly heading north. Deep Creek, however, was not included in the groundwater model area because the Deep Creek Range is believed to form a likely barrier to groundwater flow between Snake and Deep Creek valleys. Thus, it is considered hydrologically unlikely that effects of groundwater pumping in Spring or Snake valleys would extend into either Tippett or Deep Creek valleys.</p> <p>For the natural resources study area, Deep Creek Valley was included specifically at the request of the FWS and Utah, because of the occurrence of Bonneville cutthroat trout and Columbia spotted frog in streams in that valley. Although hydrologic effects are not anticipated in Deep Creek Valley, it was included in the natural resources study area because of general concerns about these conservation agreement species.</p> <p>Both the water resources and natural resources study areas may be revised based on the results of the water resources analysis, if necessary, to encompass all areas of potential effect, including those to Indian trust resources.</p>

## TEXT COMMENTS

COMMENT #	COMMENTS	RESPONSE
UTAH 1	<p><b>(Page 1-1, Chapter 1.0, Paragraph 4)</b> The narrative of the introduction states that 4 resource topics (Vegetation, Wildlife, Aquatic Species, and Soils) will be described and discussed. The introduction to the baseline report does not recognize Aquatic Habitats as being an integral part of the biological resources. Those habitats, especially those most likely impacted by groundwater withdrawals, should be inventoried or described in the summary baseline report. Groundwater drawdown to these surface aquatic features as a result of groundwater development and withdrawal should be considered direct impacts to these habitats. These unique aquatic habitat resources should be included as part of the baseline report.</p>	<p>This comment was clarified during the Natural Resource Group meeting. The concern was about physical attributes of water such as dissolved oxygen, pH, and other water quality measurements. This is addressed in the water section of Chapter 3 of the EIS, and there will be a connection between aquatic habitat and impacts on biological resources in the EIS. This information was added to the introduction section of the Final Natural Resources Summary Baseline Report.</p>
FWS 2	<p><b>(Page 1-3, Figure 1-2)</b> We recommend that the Flow System Study Area be expanded to include the Black Mountains Area Hydrographic Basin (HB), the southern-most HB in the White River Flow System and the location of two regional, thermal springs of importance: Rogers and Blue Point springs, located on Lake Mead National Recreation Area. This area harbors relict leopard frog (<i>Rana onca</i>), a candidate species for federal listing and a Conservation Agreement species. Additionally, this HB is included within the study area that the Water Resources Team has defined.</p>	<p>The Black Mountain Hydrographic Basin will be included in the area of study for the Final Natural Resources Summary Baseline Report. Impact concerns will focus on Rogers and Blue Point Springs, but not Lake Mead because it receives mostly surface water flows associated with the Colorado River. The relict leopard frog will be included in the baseline information.</p>
NPS 1	<p><b>(Page 1-3, Figure 1-2)</b> Figure 1-2 of the Flow System Study Area on page 1-3 in the Introduction. The hydrographic basin adjacent to the Lake Mead NRA, Black Mountains Hydrographic Basin, within the study area. The hydrologic baseline report includes that basin and areas within the Lake Mead NRA for hydrologic consideration. The omission of Black Mountains Hydrographic Basin from the Natural Resources Baseline Report would seem to preclude consideration of potential natural resource impacts within Lake Mead NRA that could be indicated by the hydrologic baseline report. We feel that the basins under consideration for the natural baseline report should be consistent with those under consideration for the hydrologic study area, and that within both the study basins should include Black Mountains.</p>	<p>The Black Mountain Hydrographic Basin will be included in the area of study for the Final Natural Resources Summary Baseline Report. Impact concerns will focus on Rogers and Blue Point Springs, but not Lake Mead. The relict leopard frog will be included in the baseline information.</p>
SNWA 1	<p><b>(Page 2-1, Section 2.1, Paragraph 1, Last Sentence)</b> Define more specifically the term “water-dependent vegetation”. All vegetation could be considered water-dependent.</p>	<p>Additional information was provided in the definition of water-dependent vegetation.</p>
FWS 3	<p><b>(Page 2-1, Section 2.1, Paragraph 2, Bullets)</b> The concerns identified for vegetation should also include those related to invasive species introduction and spread in the project study area due to construction, groundwater drawdown and fluctuations, etc.</p>	<p>This language has been added to the Final Natural Resources Summary Baseline Report.</p>

## TEXT COMMENTS

COMMENT #	COMMENTS	RESPONSE
GBNP 1	<b>(Pages 2-1 thru 2-2, Section 2.2.2, Bullets)</b> Additional data that should be considered: GBNP's vegetation data obtained at springs during project-specific surveys; Beever and Pyke 2004 long-term riparian vegetation monitoring plot data	These data have been acquired and will be considered in the EIS as appropriate.
FWS 4	<b>(Page 2-2, Section 2.2.2, Paragraph 1, Lines 6-7)</b> The report should more explicitly describe how phreatophytic communities are being defined, i.e., state which plant communities are included in this type.	The Final Natural Resources Summary Baseline Report and the EIS will provide an updated definition of "phreatophyte" and provide examples of vegetation types.
FWS 5	<b>(Page 2-2, Section 2.2.3, Paragraph 1, Lines 2-3)</b> The definition of an invasive species should be expanded to include native species that have become problem invasive species, e.g., <i>Typha</i> species and <i>Phragmites australis</i> , a species that appears to have both native North American lineages and introduced European lineages. The expansion and population explosion of these species in wetland communities may be facilitated by changes in hydrologic regimes. The data sources listed in this section do not include any information from Utah, an omission that should be remedied.	Clarification will be added to the Final Natural Resources Summary Baseline Report explaining that some species (such as <i>phragmites</i> ) are addressed as part of wetlands.
GBNP 2	<b>(Page 2-2, Section 2.2.3, Bullets)</b> GBNP has a shapefile of invasives in the park.	Invasive species will be described in general rather than by basin because they tend to be widespread and likely occur in more locations than documented. Noxious weeds will be described by basin. Great Basin National Park will provide BLM with GIS data for noxious weeds. Occurrence data for the Park will be included in Chapter 3 of the EIS as appropriate (i.e., for portions of the Park where there are potential noxious weed impacts as a result of this project).
NDOW 2	<b>(Page 3-1, Section 3.1, Paragraphs 1 and 2)</b> Need to list the following additional issues: 'Potential effects of groundwater drawdown on the movement patterns of terrestrial wildlife', 'Potential effects of groundwater drawdown and decrease in vigor and extent of riparian plant communities and corresponding impacts to breeding and migratory wildlife'.	This language has been added to the riparian section of the Final Natural Resources Summary Baseline Report.
GBNP 3	<b>(Page 3-1, Section 3.1, Paragraph 1, Sentence 4)</b> This should be included in the bulleted list as: Potential effects on wildlife species due to groundwater drawdown.	Issues related to the indirect effects to wildlife species have been added as new bullets.
FWS 6	<b>(Page 3-1, Section 3.1, Paragraph 2, Bullets)</b> Include the following in the list of concerns: 1) Potential effects of groundwater drawdown on terrestrial species that rely and/or utilize groundwater-dependent habitats, such as springs, wetlands/wet meadows, and riparian areas. This would include, but is not necessarily limited to, migratory birds, bats, and larger mammals such as the kit fox; and 2) Potential effects of groundwater drawdown on cave and karst systems.	This language has been added to the Final Natural Resources Summary Baseline Report.

## TEXT COMMENTS

COMMENT #	COMMENTS	RESPONSE
NDOW 3	<p><b>(Page 3-1, Section 3.2.1, Paragraph 1)</b> Actually most of the species in NDOW's Wildlife Action Plan are 'non-hunted or nongame species'. This paragraph is in need of significant rewrite. Change line 3 to 'These species are managed by state agencies.' (BLM does not 'manage' species they manage the land on which they occur). Line 4. Included species are game (fish, birds, and mammals) and take out protected from hunting in line 5 and list game species, including big game, game birds, furbearers and fish as applicable classification in NAC 503.015 – 020 – 025 – 045 - 060. Classification of nongame (i.e. protected, sensitive) including birds, mammals, bats, fish, reptiles and amphibians, under NAC 503.030 – 065 – 067 – 075 and 080.</p>	<p>This section was reviewed and updated. The language is now more accurate with regards to management of species, and the language is now more consistent with the proposed Ely RMP. This paragraph has been moved to the Wildlife Overview section of the Final Natural Resources Summary Baseline Report (Section 3.1)</p>
GBNP 4	<p><b>(Page 3-2, Section 3.2.1, Bullets)</b> Christmas Bird Count data is available for many of these areas.</p>	<p>The Christmas Bird Count data has been incorporated into the document.</p>
FWS 7	<p><b>(Page 3-2, Section 3.2.1, Paragraph 1, Lines 8-10)</b> How were the 20 most abundant migratory bird species selected (i.e., using what data sets/criteria)? The Natural Resources Team should discuss whether this is the best approach or if there are other appropriate criteria that should be considered when developing the list of migratory birds that are "Wildlife Species of Management Concern."</p>	<p>The language, and the list of species, was changed to reflect the following: "The migratory birds listed in this section include the Species of Conservation Concern and the Game Birds Below Desired Condition identified in the Migratory Bird Treaty Act Interim Management Guidance for the BLM, issued December 18, 2007."</p>
FWS 8	<p><b>(Page 3-2, Section 3.2.2, Paragraph 1, Lines 1-2)</b> Special Status Wildlife Species should also include candidate and proposed species for federal listing.</p>	<p>Special status species lists will include federal candidate and proposed species for federal listing in the Final Natural Resources Baseline Summary Report.</p>
SNWA 2	<p><b>(Page 4-1, Section 4.0)</b> Have the possible effects to Colorado River species from construction in the basin or increased return flows been considered, or is this effect negligible?</p>	<p>Species within the mainstem of the Colorado River and the Lake Mead Reservoir have been addressed in the recent EIS for Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead, prepared by the Bureau of Reclamation (Final EIS November 2007 and ROD December 2007). That document addressed ongoing operations and management of the Colorado River and Lake Mead by the Bureau of Reclamation. Potential effects from construction of wastewater treatment and handling of projected increases in return flows to the Colorado River from the Las Vegas Valley have been addressed in the EIS for the System Conveyance and Operations Program prepared by the National Park Service (Final EIS and ROD August 2007). Both of these documents would be referenced in the impact analysis discussions of the EIS, as relevant.</p>

## TEXT COMMENTS

COMMENT #	COMMENTS	RESPONSE
UTAH 2	<b>(Page 4-1, Sections 4.1 and 4.2, Aquatic Wildlife Species)</b> Overview and Affected Environment Information, and 4.2.1 Habitat. Seeps, springs and wetlands have a very high potential for being directly impacted by groundwater drawdown. The description of how these habitats will be addressed seems to minimize the importance of these habitat types.	Language has been added to the Final Natural Resource Summary Baseline Report explaining that seeps and springs are addressed in the water resources section of the EIS.
UTAH 3	<b>(Page 4-2, Section 4.2.3, Paragraph 1)</b> UNHP is not cited as a reference for this section: should be a significant source of info.	Both UNHP and NNHP have been added as references.
GBNP 5	<b>(Page 4-2, Section 4.2.3, Paragraph 1)</b> Non-game fish should be listed, especially native species. Mottled sculpin, redbside shiner, speckled dace, Utah chub, and Utah sucker are five species native to Big Springs Creek. GBNP is working to restore the first three into several park streams.  This section should also mention cave-adapted species that are given cursory attention in the 4.1 Overview. See Krejca and Taylor 2003 report and Shear 2007 millipede publication.	NDOW has provided information on these species and the species have been added to the occurrence table.  A discussion of cave organisms and their habitat was added to Section 4.2.3.
SNWA 3	<b>(Page 5-1, Section 5.1, Overview)</b> Explain the two levels of soil characteristics for the two study areas, similar to the explanation for the other resources.	The study areas for soils were revised to be similar to the discussion for biological resources. Predominant soils types will be identified from published soils data.
SNWA 4	<b>(Page 5-1, Section 5.2, Paragraph 3)</b> This paragraph states that “[p]redominant soil types will be identified within the ROW.” When will these surveys be completed and will the information be included in the discussion of the affected environment in the EIS?	The source of this information is published soils data rather than new field surveys.
USFS 2	<b>(Page 5, Chapter 4.0)</b> The columns for the following streams should be marked “Bonneville Cutthroat Trout”, not “Cutthroat Trout”: Deadman Creek, Hampton Creek, Hendry’s Creek, and Smith Creek. Deep Canyon Creek, not on the list of streams on this page, also support “Bonneville Cutthroat Trout” and Silver Creek is slated for possible reintroduction of “Bonneville Cutthroat Trout”.	These revisions were made in Table 4-2.
USFS 3	<b>(Page 5, Chapter 5.0)</b> Figure 5-1 “ROW with Soil Survey Areas” shows the areas within the National Forest Boundaries as not having been surveyed. These areas are presently being surveyed by the NRCS and upon completion of any portion of these areas the survey data needs to be incorporated into future maps and any future planning documents. Portions of the South Snake Range, the area surrounding Great Basin National Park, presently BLM but previously National Forest, were completed in 2006 and that data may be available from the NRCS.	This comment was discussed with Pete Harden. The area he was referencing is not located within the disturbance areas for the ROWs. He agreed that the information would not be required for the EIS.

**TEXT COMMENTS**

COMMENT #	COMMENTS	RESPONSE
NDOW 4	<p><b>(Page 7-3, Chapter 7.0)</b> The following citation should be included under Terrestrial Wildlife Species and the report is available from NDOW. Contact Polly Conrad at 702-486-5127 ext 3718.</p> <p>Hamilton, B.T. and R. Thomas. 2007. Sonoran mountain kingsnake (<i>Lampropeltis pyromelana</i>) surveys in the Snake Range, Nevada. Final report submitted in partial completion of the interlocal contract #06-28 between Great Basin National Park and the Nevada Department of Wildlife. Baker, NV.</p>	<p>This citation has been added to the Final Natural Resources Summary Baseline Report.</p>

**TABLE COMMENTS**

COMMENT #	COMMENTS	RESPONSE
GBNP 7	<p><b>(Pages 2-4 thru 2-6, Table 2-1)</b> Should be included in Snake Valley: Inter-Mountain Basins Wash, Inter-Mountain Basins Big Sagebrush Steppe, Rocky Mountain Subalpine Mesic Meadow</p> <p>Should be included in Spring Valley: Rocky Mountain Subalpine Mesic Meadow</p>	<p>Table 2-1 summarizes the area of the mapped REGAP cover types that are intercepted by the pipeline and power line ROWS. Other REGAP cover types are present in Snake Valley, but are either not intercepted by project facilities, or are inclusions within other cover types.</p>
FWS 9	<p><b>(Page 2-7, Table 2-2)</b> Note: We did not thoroughly review the table of Special Status Plant Species in the project study area (Table 2.2), but we have found numerous errors or omissions in the tables for special status fauna and suspect that Table 2.2 should be thoroughly checked to verify plant distributions.</p>	<p>Occurrence data were updated to reflect surveys conducted in 2006 and 2007.</p>
GBNP 8	<p><b>(Pages 2-7 thru 2-10, Table 2-2)</b> Should be included in Snake Valley: Simpson hedgehog cactus (Clifton 2006)</p>	<p>A scientific name is needed for the referenced "Simpson hedgehog cactus". Based on the Flora of the Southern Snake Range (Clifton 2006) both <i>Pediocactus simpsoni</i>, and <i>Sclerocactus pubispinus</i> are present in the Snake Range. Both are widely distributed plants within the Great Basin, and are not included on federal lists of protected species. Gretchen Baker of the NPS responded to inquiry from Scott Ellis of ENSR that this comment should be retracted.</p>
GBNP 9	<p><b>(Pages 2-11 thru 2-12, Table 2-3)</b> Should be included in Snake Valley: Squarrose knapweed, Goosefoot, water hemlock, tall whitetop (Clifton 2006)</p>	<p>Squarrose knapweed, water hemlock, tall whitetop have been added to the noxious weed table. "Goosefoot" typically refers to species in the genus <i>Chenopodium</i>, which are generally not considered invasive or noxious species. Clifton 2006 lists <i>Chenopodium glaucum</i> (Leafy Goosefoot) as an introduced species. This species is not included on federal and state noxious or invasive species lists. Gretchen Baker of the NPS responded to inquiry from Scott Ellis of ENSR that the goosefoot comment should be retracted.</p>
FWS 10	<p><b>(Page 2-11, Table 2-3)</b> It is unclear why Table 2-3 only includes ROWs/Groundwater Exploratory Area HBs and not the entire Project Study Area (e.g., Fish Springs Flat and other areas in Utah are completely absent from this table). Groundwater drawdown and/or increased fluctuations in depth to groundwater could give some invasive weeds a competitive advantage over other species. Again, the distribution information for the weed species in this table needs to be verified: e.g., squarrose knapweed should be shown for Snake Valley; at least six species from this list are found within Fish Springs Flat; and the distribution information appears to be incomplete for red brome, cheatgrass, and likely salt cedar and many other species as well.</p>	<p>Occurrence data for noxious weeds were updated to reflect potential presence in hydrologic basins within the region of study. Invasive species will be described in general rather than by basin because they tend to be widespread and likely occur in more locations than documented. Noxious weeds will be described by basin.</p>

**TABLE COMMENTS**

COMMENT #	COMMENTS	RESPONSE																																																				
UTAH 4	<b>(Page 3-6, Table 3-1)</b> Table Codes: We were unable to correct or offer appropriate codes (i.e. E, RE, or B), as none of the provided maps define where these areas are located. As such, throughout the following comments we include names of species that are present/likely present in appropriate basins, but we do not assign them codes.	UDWR provided additional occurrence data by basin. The only code that is appropriate for Utah is "B" (which has since been changed to S) because there is no right-of-way or groundwater exploratory areas in Utah.																																																				
NDOW 5	<b>(Page 3-4, Table 3-1)</b> Table 3-1 and 3-2. <i>Recommend</i> integrating the two tables into one and possibly naming the table as 'Species of Conservation Priority' (we have a similar table in NDOW's Wildlife Action Plan (pages 56-63) which could be used as an example). In the current document, it is very difficult with the two tables to go back and forth. Additionally need more species relative to small mammals and reptile section (see additional species which are listed after the last comment [marked § below]) These added species would need to be further divided to Hydrographic Basins.	The tables were merged into one table. The species of management concern were given a separate code.																																																				
NDOW 6	<b>(Page 3-4, Table 3-1)</b> Add new row for Desert bighorn sheep, <i>Ovis canadensis nelsoni</i> . Occurrence by hydrographic basin is: <table border="0" data-bbox="401 716 1188 1089"> <tr> <td>Las Vegas Valley</td> <td>R</td> <td>California Wash</td> <td>B</td> </tr> <tr> <td>Garnet Valley</td> <td>R</td> <td>Lake Valley</td> <td>R</td> </tr> <tr> <td>Hidden Valley North</td> <td>R</td> <td>Patterson Valley</td> <td>B</td> </tr> <tr> <td>Coyote Spring Valley</td> <td>R</td> <td>Spring Valley (#201)</td> <td>B</td> </tr> <tr> <td>Pahranagat Valley</td> <td>R</td> <td>Eagle Valley</td> <td>B</td> </tr> <tr> <td>Delamar Valley</td> <td>RE</td> <td>Panaca Valley</td> <td>B</td> </tr> <tr> <td>Dry Lake Valley</td> <td>RE</td> <td>Lower Meadow Valley</td> <td>B</td> </tr> <tr> <td>Cave Valley</td> <td>RE</td> <td>Dry Valley</td> <td>B</td> </tr> <tr> <td>Kane Springs Valley</td> <td>B</td> <td>Clover Valley</td> <td>B</td> </tr> <tr> <td>Pahroc Valley</td> <td>B</td> <td>Rose Valley</td> <td>B</td> </tr> <tr> <td>White River Valley</td> <td>B</td> <td>Spring Valley (#184)</td> <td>RE</td> </tr> <tr> <td>Muddy River Springs Area</td> <td>B</td> <td>Hamlin Valley</td> <td>R</td> </tr> <tr> <td>Lower Moapa Valley</td> <td>B</td> <td>Steptoe Valley</td> <td>B</td> </tr> </table>	Las Vegas Valley	R	California Wash	B	Garnet Valley	R	Lake Valley	R	Hidden Valley North	R	Patterson Valley	B	Coyote Spring Valley	R	Spring Valley (#201)	B	Pahranagat Valley	R	Eagle Valley	B	Delamar Valley	RE	Panaca Valley	B	Dry Lake Valley	RE	Lower Meadow Valley	B	Cave Valley	RE	Dry Valley	B	Kane Springs Valley	B	Clover Valley	B	Pahroc Valley	B	Rose Valley	B	White River Valley	B	Spring Valley (#184)	RE	Muddy River Springs Area	B	Hamlin Valley	R	Lower Moapa Valley	B	Steptoe Valley	B	The occurrence data were modified in the table as suggested.
Las Vegas Valley	R	California Wash	B																																																			
Garnet Valley	R	Lake Valley	R																																																			
Hidden Valley North	R	Patterson Valley	B																																																			
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Muddy River Springs Area	B	Hamlin Valley	R																																																			
Lower Moapa Valley	B	Steptoe Valley	B																																																			
GBNP 10	<b>(Pages 3-4 thru 3-6, Table 3-1)</b> Should be included in Snake Valley: chukar, Eurasian collared-dove, all waterfowl listed, all aquatic birds listed. Consult GBBO's data on Pruess Lake, GBNP burd list, and Hartley and Gubanich 2004.  Should be included in Spring Valley: most of the above. Consult GBBO and NDOW.	The sources suggested have been consulted. However, the list of migratory birds was changed to include only the Species of Conservation Concern and the Game Birds Below Desired Condition identified in the Migratory Bird Treaty Act Interim Management Guidance for the BLM, issued December 18, 2007, so some species identified in the comment are no longer in this table.																																																				

**TABLE COMMENTS**

COMMENT #	COMMENTS	RESPONSE
FWS 11	<p><b>(Pages 3-4 thru 3-6, Table 3-1)</b> We were not able to verify the accuracy of the distribution information for each species in this table. However, we did notice several errors which indicate a need for thorough examination of the data in this table by the contractors and BLM to determine errors and omissions. We also noted that “B” is defined as follows: “...a species is <i>potentially</i> present in a basin.” We are not convinced that the distribution information presented here actually represents <i>potential</i> to occur rather than documented occurrences. If so, we would anticipate that mourning dove and common raven would <i>potentially</i> be found in all HBs in the project study area. Also, we question California quail occurring in Las Vegas Valley and Gambel’s quail in Snake Valley. Many species in this table have been documented at Pahrnagat National Wildlife Refuge and/or Fish Springs National Wildlife Refuge, and yet this information is not reflected in Table 3-1. A quick search of the internet produced bird species lists for these refuges that could help round out this information (note: however, we’d suggest contacting the refuge managers to see if there are more up-to-date bird lists, and we can help with that). There is a near absence of distribution data for bird species in Utah, which appears to show a lack of effort to collect this information. There are likely several sources of bird data that could help fill in distribution information gaps, including breeding bird atlases, breeding bird survey route data, and Christmas bird count data.</p>	<p>Initially, the lists identified only known locations for these species. However, additional data were received from NDOW and UDWR identifying potential habitat by basin. The tables will be updated in the revised Summary Report so that distribution information includes potential distribution in addition to known locations.</p>
UTAH 5	<p><b>(Pages 3-4 thru 3-6, Table 3-1)</b> The results of the North American Breeding Bird Surveys can be found in the “Raw Data” section of the Breeding Bird Survey web page (google breeding bird surveys or go directly to <a href="http://www.pwrc.usgs/bbs">www.pwrc.usgs/bbs</a> . Breeding Bird Survey data shows the presence of many of the species in Table 3-1 to also occur in the Deep Creek Valley</p>	<p>UDWR provided updates on breeding bird occurrences for Utah basins. The Breeding Bird Survey web page will be consulted and the table updated accordingly in the revised Summary Report.</p>
UTAH 6	<p><b>(Pages 3-4 thru 3-6, Table 3-1)</b> See attached spreadsheet for bird species documented in Snake, Fish Springs Flat, Tule Valley and Deep Creek Valley. This table was summarized from Breeding Bird Surveys conducted along transects within their respective Flow System Study areas and the species list from the Fish Springs National Wildlife Refuge (see below).</p>	<p>The occurrence data were added to the table.</p>
UTAH 7	<p><b>(Page 3-4, Table 3-1, Upland Birds)</b> Change name of Blue Grouse to Dusky Grouse (<i>Dendragapus obscurus</i>), and likely occurs in Deep Ck valley. Add White-winged Dove to Snake Valley. Add Mourning Dove to Fish Springs, Tule, Pine, Deep Creek and Wah Wah valleys. Add Ring-necked pheasant to Fish Springs Flat and Deep Ck Valley.</p>	<p>Changes were made as suggested.</p>
NDOW 7	<p><b>(Page 3-4, Table 3-1)</b> Remove Eurasian Collared dove (exotic species).</p>	<p>This species was deleted.</p>

## TABLE COMMENTS

COMMENT #	COMMENTS	RESPONSE
FWS 12	<b>(Page 3-4, Table 3-1)</b> Under Game Birds, we suggest changing the 2 subcategories to: 1) Upland Game Birds and 2) Migratory Game Birds (instead of Waterfowl). Also, we do not believe that all of the species currently listed as Game Birds (in the “waterfowl” subcategory) are species that are legal to hunt or take in Nevada (e.g., grebe species, double-crested cormorant).	The format of the table was changed and these headings are no longer being used.
NDOW 8	<b>(Pages 3-5 thru 3-6, Table 3-1)</b> Table 3-1 and 3-2, add the following management concern birds: olive-sided flycatcher, black phoebe, long-billed dowitcher, least sandpiper, loggerhead shrike, Add the following to Special Status: Bendire’s thrasher, southwestern willow flycatcher, black tern, Scotts oriole, Franklins gull.	Changes were made as suggested. However, the list of migratory birds was changed to include only the Species of Conservation Concern and the Game Birds Below Desired Condition identified in the Migratory Bird Treaty Act Interim Management Guidance for the BLM, issued December 18, 2007, so some species identified in the comment are no longer in this table.
FWS 13	<b>(Page 3-5, Table 3-1)</b> The heading “migratory birds” is a little odd in that many of the species previously mentioned are also migratory birds but are included under a different heading. Perhaps use “passerines,” “corvids,” and other headings such as this that are appropriate.	The format of the table was changed and these headings are no longer being used.
UTAH 8	<b>(Page 3-4, Table 3-1, Waterfowl)</b> List of species that should be included in Fish Springs Flat: Western Grebe, Green-winged Teal, Mallard, Gadwall, Canada Goose, American Coot, Pied-billed Grebe. Also check online list of waterfowl and other bird species found at Fish Springs National Wildlife Refuge. The bird list of the Fish Springs National Wildlife Refuge also gives relative abundance of many of the species shown in Table 3-1 (hint: google Fish Springs National Wildlife Refuge). Additional waterfowl species from Fish Springs Flat should include: Northern pintail, Cinnamon teal, Redhead, & Common merganser.	The online list will be consulted and these species will be included in the table for Fish Springs Flat in the revised Summary Report. However, the list of migratory birds was changed to include only the Species of Conservation Concern and the Game Birds Below Desired Condition identified in the Migratory Bird Treaty Act Interim Management Guidance for the BLM, issued December 18, 2007, so some species identified in the comment are no longer in this table.
UTAH 9	<b>(Page 3-4, Table 3-1, Waterfowl)</b> List of species that should be included in Snake Valley: Northern Pintail, Green-winged teal, Cinnamon Teal, Gadwall, Redhead, American Coot, Common merganser, Double Crested Cormorant.	Changes were made as suggested. However, the list of migratory birds was changed to include only the Species of Conservation Concern and the Game Birds Below Desired Condition identified in the Migratory Bird Treaty Act Interim Management Guidance for the BLM, issued December 18, 2007, so some species identified in the comment are no longer in this table.
UTAH 10	<b>(Page 3-4, Table 3-1, Waterfowl)</b> Species that need to be added to list (basins): Tundra Swan (Fish Springs Flat); Bufflehead (Snake Valley); American Wigeon (Snake Valley).	Same response as UTAH 9.
UTAH 11	<b>(Page 3-4, Table 3-1, Aquatic Birds)</b> List of species that should be included in Fish Springs Flat: Great Blue Heron, Greater Yellowlegs.	Same response as UTAH 9.

**TABLE COMMENTS**

COMMENT #	COMMENTS	RESPONSE
UTAH 12	<b>(Page 3-4, Table 3-1, Aquatic Birds)</b> List of species that should be included in Snake Valley: Snowy Egret, Black-necked Stilt, Black-crowned Night Heron, Wilson’s Phalarope, White-faced Ibis, Sora, Virginia Rail, American Avocet, Greater Yellowlegs.	Same response as UTAH 9.
UTAH 13	<b>(Page 3-4, Table 3-1, Aquatic Birds)</b> List of species that should be included in Tule Valley: Wilson’s Snipe (also, combine records of Common snipe with Wilson’s—they are now both recognized as Wilson’s snipe), American Avocet.	Same response as UTAH 9.
UTAH 14	<b>(Page 3-4, Table 3-1, Aquatic Birds)</b> Species that need to be added to list (basins): Ring-billed Gull (Snake Valley), Franklin’s Gull (Snake Valley), and Black Tern (Snake Valley).	Same response as UTAH 9.
UTAH 15	<b>(Page 3-5, Table 3-1, Birds)</b> List of Species of Management Concern that should be included in Hamlin, Fish Springs Flat, Tule, Pine, Snake, Deep Creek and Wah Wah Valleys: Coopers Hawk, Sharp-shinned hawk, Great Horned owl, Red-tailed hawk, Rough-legged hawk, Turkey vulture, Northern harrier, Merlin, American Kestrel, Sage Sparrow, black-throated sparrow, western scrub-jay, Cassin’s finch, Northern flicker, common raven, horned lark, dark-eyed junco, sage thrasher, savannah sparrow, spotted towhee, western tanager, rock wren, broad-tailed hummingbird, brewer’s sparrow, western meadowlark, violet-green swallow, American robin, Western Kingbird, Warbling vireo.	Same response as UTAH 9.

## TABLE COMMENTS

COMMENT #	COMMENTS	RESPONSE
NDOW 9	<p><b>(Tables 3-1 and 3-2)</b> Additional species for Tables 3-1 and 3-2: Reptile Species List (also Nevada Species of Conservation Priority in the Wildlife Action Plan)</p> <ul style="list-style-type: none"> <li>▪ Western banded gecko (<i>Coleonyx variegatus</i>)</li> <li>▪ Desert night Lizard (<i>Xantusia vigilis</i>)</li> <li>▪ Desert iguana (<i>Dipsosaurus dorsalis</i>)</li> <li>▪ Long-tailed brush lizard (<i>Urosaurus graciosus</i>)</li> <li>▪ Great Basin collared lizard (<i>Crotaphytus bicinctores</i>)</li> <li>▪ Gilbert's skink (<i>Eumeces gilberti</i>)</li> <li>▪ Long-nosed leopard lizard (<i>Gambelia wislizenii</i>)</li> <li>▪ Desert horned lizard (<i>Phrynosoma platyrhinos</i>)</li> <li>▪ Greater short-horned lizard (<i>Phrynosoma hernandesii</i>)</li> <li>▪ Sonoran lyre snake (<i>Trimorphodon biscutatus</i>)</li> <li>▪ Sonoran mountain kingsnake (<i>Lampropeltis pyromelana</i>)</li> </ul> <p><b>Mammal Species List (also Nevada Species of Conservation Priority in the Wildlife Action Plan)</b></p> <ul style="list-style-type: none"> <li>▪ Merriam's shrew (<i>Sorex merriami</i>)</li> <li>▪ Desert kangaroo rat (<i>Dipodomys deserti</i>)</li> <li>▪ Vagrant shrew (<i>Sorex vagrans</i>)</li> <li>▪ Brush mouse (<i>Peromyscus boylei</i>)</li> <li>▪ Inyo shrew (<i>Sorex tenellus</i>)</li> <li>▪ Kit fox (<i>Vulpes macrotis</i>)</li> <li>▪ Water shrew (<i>Sorex palustris</i>)</li> <li>▪ Desert pocket mouse (<i>Chaetodipus pencillatus</i>)</li> </ul>	Changes were made as suggested.
FWS 14	<p><b>(Pages 3-7 thru 3-9, Table 3-2)</b> Again, Table 3-2 should be thoroughly reviewed by the consultants and BLM to verify that the distribution information is correct. Again, there appears to be a near complete lack of information included for the Utah HBs, which makes review of the information for omissions or corrections simply not possible. Terrestrial species that may be impacted by groundwater drawdown and/or reduced spring discharge in Utah need to be considered here (e.g., bats, kit fox that frequent desert watering holes).</p>	UDWR and USFWS provided additional occurrence data for Utah.
GBNP 11	<p><b>(Pages 3-7 thru 3-9, Table 3-2)</b> Should be included in Snake Valley: ringtail (Rickart and Robsen 2005), greater sage-grouse, peregrine falcon, Lewis's woodpecker, long-billed curlew, flammulated owl.</p>	These species have been added to the table.
UTAH 16	<p><b>(Page 3-7, Table 3-2, Mammals)</b> Pygmy rabbits are present in Hamlin and Pine Valleys; they are a possibility in Fish Springs flat, Wah Wah, Snake and Tule Valleys.</p>	Changes were made as suggested.

**TABLE COMMENTS**

COMMENT #	COMMENTS	RESPONSE
UTAH 17	<b>(Page 3-7, Table 3-2, Mammals)</b> Utah Prairie Dogs (not listed; <i>Cynomys parvidens</i> ) occupy a significant portion of southern Pine Valley.	This comment was retracted by the State of Utah and does not need to be addressed.
UTAH 18	<b>(Page 3-7, Table 3-2, Mammals)</b> Kit fox (not listed; <i>Vulpes velox</i> ) are likely present in Fish Springs flat, Hamlin, Pine, Wah Wah, Snake and Tule Valleys.	Changes were made as suggested.
UTAH 19	<b>(Page 3-7, Table 3-2, Mammals)</b> List of Special Status Terrestrial Wildlife Species that should be included in Hamlin, Fish Springs Flat, Tule, Pine, Snake and Wah Wah Valleys: Pallid Bat, Ringtail, Townsend's Big Eared Bat, Big Brown Bat, Spotted Bat, Allen's big eared bat, Silver-haired bat, Western Red Bat, Hoary Bat, Dark Kangaroo Mouse, California myotis, Long eared myotis, little brown bat, Fringed myotis, Big Free-tailed bat, Western pipistrelle, Brazilian free-tailed bat.	Changes were made as suggested.
UTAH 20	<b>(Page 3-7, Table 3-2, Mammals)</b> Desert valley kangaroo mouse and Yuma myotis should be listed as potentially present in Hamlin and Pine valleys.	Desert Valley kangaroo mouse ( <i>Microdipodops megacephalus albiventer</i> ), a subspecies of the dark kangaroo mouse ( <i>Microdipodops megacephalus</i> ) is found only in Dry Lake Valley and not in Hamlin or Pine valleys. The dark kangaroo mouse is found in Hamlin and Pine valleys. The tables have been updated with the appropriate distribution information for Desert Valley kangaroo mouse, dark kangaroo mouse, and Yuma myotis, based on the comment provided and the location information described above.
UTAH 21	<b>(Page 3-7, Table 3-2, Birds)</b> Northern Goshawk has been reported in Pine and Wah Wah valleys (UDWR natural heritage database).	Changes were made as suggested.
UTAH 22	<b>(Page 3-7, Table 3-2, Birds)</b> Golden Eagles are likely present in Fish Springs flat, Hamlin, Pine, Wah Wah, Snake and Tule Valleys.	Changes were made as suggested.
UTAH 23	<b>(Page 3-7, Table 3-2, Birds)</b> List of Special Status Terrestrial Wildlife Species that should be included in Hamlin, Fish Springs Flat, Tule, Pine, Snake and Wah Wah Valleys: Short-eared owl, Western burrowing owl, Juniper titmouse, Ferruginous hawk, Greater sage grouse, Prairie falcon, pinyon jay, Loggerhead shrike, Long-billed curlew, common yellowthroat.	Changes were made as suggested. However, the list of migratory birds was changed to include only the Species of Conservation Concern and the Game Birds Below Desired Condition identified in the Migratory Bird Treaty Act Interim Management Guidance for the BLM, issued December 18, 2007, so the juniper titmouse is no longer in this table.
UTAH 24	<b>(Page 3-7, Table 3-2, Birds)</b> Bald eagles have been reported in Pine and Wah Wah valleys—should be included on list (UDWR natural heritage database).	Changes were made as suggested.

## TABLE COMMENTS

COMMENT #	COMMENTS	RESPONSE
UTAH 25	<p><b>(Page 3-7, Table 3-2, Birds)</b> Should consider inclusion of California Condor. The Valleys are outside of the current 10J (USFWS experimental population designation) area, but there is a possibility the birds will travel/expand to these areas in the near future.</p>	<p>Natural Resources Group agreed that there is no need to include California condor in this analysis as the condor is not likely to be found within the project area. Condors associated with the experimental population in the Grand Canyon have not shown any permanent movements away from that general location, and therefore, will not be considered in the analysis for the groundwater project. Even if any condors did make the journey to the project area, the amount of available foraging habitat that could be impacted is negligible relative to the amount of foraging habitat available in the general area.</p>
GBNP 12	<p><b>(Pages 4-3 thru 4-6, Table 4-1)</b> Consult with NDOW about Bonneville cutthroat trout status. Many populations have been verified as genetically pure. Within GBNP, Mill, Strawberry, SF Baker, South Fork Big Wash, and Snake Creek have pure populations of Bonneville cutthroat trout.</p> <p>Lehman Creek also contains brook trout.</p> <p>Baker Creek also contains brown trout.</p> <p>Baker Lake also contains brook trout (and Lahontan cutthroat trout, so the general cutthroat trout category is correct here).</p> <p>Big Springs Creek also contains rainbow trout.</p>	<p>This occurrence information was combined with data provided by NDOW in a new table numbered 4-2.</p>
NDOW 10	<p><b>(Page 4-3, Table 4-1)</b> Remove Carp from species list, this is unprotected wildlife, not a game fish species and does not need to be included in analysis</p>	<p>Change was made.</p>
NDOW 11	<p><b>(Page 4-3, Table 4-1)</b> Pahrnagat Valley, Nesbit Lake – add largemouth bass</p>	<p>This occurrence information was added to Table 4-2.</p>
NDOW 12	<p><b>(Page 4-3, Table 4-1)</b> White River Valley, Adams-McGill Reservoir – add largemouth bass, delete bowcutt</p>	<p>These revisions were made in Table 4-2.</p>
NDOW 13	<p><b>(Page 4-3, Table 4-1)</b> White River Valley, Cold Springs Reservoir– add bullhead and largemouth bass, delete bowcutt</p>	<p>These revisions were made in Table 4-2.</p>
NDOW 14	<p><b>(Page 4-3, Table 4-1)</b> White River Valley, Dacey Reservoir add largemouth bass, delete bowcutt</p>	<p>These revisions were made in Table 4-2.</p>
NDOW 15	<p><b>(Page 4-3, Table 4-1)</b> White River Valley, Haymeadow Reservoir– add bullhead and largemouth bass, delete bowcutt</p>	<p>These revisions were made in Table 4-2.</p>
NDOW 16	<p><b>(Page 4-3, Table 4-1)</b> White River – delete Brook Trout</p>	<p>Revision was made in Table 4-2.</p>
NDOW 17	<p><b>(Page 4-3, Table 4-1)</b> White River Valley, Currant Creek. Delete, this is in Railroad Valley hydrographic basin</p>	<p>Revision was made in Table 4-2.</p>

## TABLE COMMENTS

COMMENT #	COMMENTS	RESPONSE
NDOW 18	<b>(Page 4-3, Table 4-1)</b> Lower Moapa Valley – add Muddy River as stream in this hydro basin on next line (34) and include bullhead and largemouth bass as game fish species of occurrence. Channel catfish also occur in this stream reach only and should be added to list of game fish species.	Revisions were made in Table 4-2.
NDOW 19	<b>(Page 4-3, Table 4-1)</b> California Wash – this can be listed as “no known fish populations” (see note below on table 4-2 to clarify this)	Revision was made in Table 4-2.
UTAH 26	<b>(Pages 4-3 thru 4-6, Table 4-1, Fish)</b> Cutthroat trout are listed as both cutthroat trout (no subspecies designation) and Bonneville cutthroat trout. Are Lahontan (or Humboldt) cutthroat trout in any of the Nevada drainages?	Lahontan cutthroat trout was identified by GBNP for Baker Lake.
NDOW 20	<b>(Page 4-4, Table 4-1)</b> Steptoe Valley, Duck Creek – delete bowcutt, add largemouth bass	Revisions were made in Table 4-2.
NDOW 21	<b>(Page 4-4, Table 4-1)</b> Steptoe Valley, Bassett Lake – delete bowcutt, add largemouth bass	Revisions were made in Table 4-2.
NDOW 22	<b>(Page 4-4, Table 4-1)</b> Steptoe Valley, Comins Lake – delete brook trout and bowcutt, add largemouth bass	Revisions were made in Table 4-2.
NDOW 23	<b>(Page 4-4, Table 4-1)</b> Steptoe Valley, Bird Creek – add brook trout	Revision was made in Table 4-2.
NDOW 24	<b>(Page 4-4, Table 4-1)</b> Steptoe Valley, Steptoe Ranch – delete bowcutt, add largemouth bass	Revisions were made in Table 4-2.
NDOW 25	<b>(Page 4-4, Table 4-1)</b> Steptoe Valley, Monte Neva Hot Springs – delete bowcutt, add largemouth bass	Revisions were made in Table 4-2.
NDOW 26	<b>(Page 4-4, Table 4-1)</b> Snake Valley, Deep Canyon - delete cutthroat add BCT	Revisions were made in Table 4-2.
NDOW 27	<b>(Page 4-4, Table 4-1)</b> Snake Valley, Silver Creek - add cutthroat (we found some cuts there in Oct. – not sure what they are yet but prob. BCT)	Revision was made in Table 4-2.
NDOW 28	<b>(Page 4-4, Table 4-1)</b> Snake Valley, Strawberry Creek – delete cutthroat add BCT	Revisions were made in Table 4-2.
NDOW 29	<b>(Page 4-4, Table 4-1)</b> Snake Valley, Silver Creek Reservoir – delete brook trout	Revision was made in Table 4-2.
NDOW 30	<b>(Page 4-4, Table 4-1)</b> Snake Valley, Mill Creek – delete cutthroat add BCT	Revisions were made in Table 4-2.
FWS 15	<b>(Page 4-4, Table 4-1)</b> The streams on both sides of the Deep Creek Mountains in Snake Valley and Deep Creek Valley should be included (e.g., Toms', Indian, Red Cedar, Cottonwood, Granite, Trout and Birch creeks). Reintroduction of BCT has been going on for about 30 years. Data should be available from UDWR, TU, and BLM.	These streams were added to Table 4-2.
NDOW 31	<b>(Page 4-5, Table 4-1)</b> Snake Valley, Snake Creek – delete brook trout	Revision was made in Table 4-2.
NDOW 32	<b>(Page 4-5, Table 4-1)</b> Snake Valley, Big Wash – delete cutthroat add BCT	Revisions were made in Table 4-2.
NDOW 33	<b>(Page 4-5, Table 4-1)</b> Snake Valley, Sacramento Pass Pond – delete brook trout	Revision was made in Table 4-2.

## TABLE COMMENTS

COMMENT #	COMMENTS	RESPONSE
NDOW 34	<b>(Page 4-5, Table 4-1)</b> Snake Valley, Deadman Creek through South Fork of Big Wash – delete cutthroat add BCT	Revisions were made in Table 4-2.
NDOW 35	<b>(Page 4-5, Table 4-1)</b> Spring Valley, Muncy Creek – delete cutthroat add brook & bowcut	Revisions were made in Table 4-2. Bowcut was listed as “trout hybrids.”
NDOW 36	<b>(Page 4-5, Table 4-1)</b> Spring Valley, Kalamazoo Creek – delete brook	Revision was made in Table 4-2.
NDOW 37	<b>(Page 4-5, Table 4-1)</b> Spring Valley, McCoy Creek – add bowcut	Bowcut was listed as “trout hybrids” in Table 4-2.
NDOW 38	<b>(Page 4-5, Table 4-1)</b> Spring Valley, Bastian Creek – add brown	Revision was made in Table 4-2.
NDOW 39	<b>(Page 4-5, Table 4-1)</b> Spring Valley, Pine Creek – delete cutthroat add BCT	Revisions were made in Table 4-2.
NDOW 40	<b>(Page 4-5, Table 4-1)</b> Spring Valley, Shingle Creek – add rainbow	Revision was made in Table 4-2.
NDOW 41	<b>(Page 4-5, Table 4-1)</b> Spring Valley, Ridge Creek – delete cutthroat add BCT	Revisions were made in Table 4-2.
UTAH 27	<b>(Page 4-6, Table 4-1, Fish)</b> Deep Creek Valley indicates that information is not yet available. Information on Bonneville cutthroat trout (BCT) was sent to Kay Nicholson of ENTRIX. BCT are found in Granite, Red Cedar, Indian Farms, North Fork of Birch, Trout, Tom's, and Birch Creeks. Also, on the west side of the Deep Creek Mountains, within the Goshute Reservation, BCT are in Fifteen Mile, Steve and Spring Creeks. USFWS may have information on other streams.	These streams were added to Table 4-2.
NDOW 42	<b>(Page 4-7, Table 4-2)</b> White River desert sucker Delete occurrence in Pahrnagat Valley, White River Valley only	Revision made in Table 4-1.
NDOW 43	<b>(Page 4-7, Table 4-2)</b> Meadow Valley Wash desert sucker, add Eagle Valley, likely occurrence as part of contiguous flow system	Revision made in Table 4-1.
NDOW 44	<b>(Page 4-7, Table 4-2)</b> Moapa White River springfish – unless California Wash hydro basin includes mainstem Muddy River that reference should be deleted. Only known occurrence below Warm Springs Road other than incidental occupancy of Muddy River is an old record from a floodplain pond near Hidden Valley Dairy which may no longer be valid.	The California Wash hydro basin boundary is the middle of the Muddy River. The Moapa White River springfish occurrence should not include California Wash because there is no reliable source that documents this species in the Muddy River reach within the California Wash basin, and because the Moapa White River springfish habitat is only in and around warm springs in the headwaters of the Muddy River in the Muddy River Springs Area. Moapa White River springfish occurrence should continue to include Muddy River Springs Area.
NDOW 45	<b>(Page 4-7, Table 4-2)</b> Bonytail – nearest occurrence is Lake Mohave on Colorado River, delete species and location reference	Change was made.
NDOW 46	<b>(Page 4-7, Table 4-2)</b> Virgin River chub – see comment above for MWR springfish line 5 – mainstem Muddy River occurrence only so delete reference to California Wash unless mainstem is included in that.	Muddy River mainstem is included as part of California Wash.

**TABLE COMMENTS**

COMMENT #	COMMENTS	RESPONSE
NDOW 47	<b>(Page 4-7, Table 4-2)</b> Virgin [River] spinedace – <i>L.m.mollispinis</i> does not occur in the project area or adjacent basins, nearest location is Beaver Dam Wash drainage adjacent to Clover Valley #204. Delete this reference, however this maybe was <i>supposed</i> to be White River spinedace <i>Lepidomeda albivallis</i> , occurrence is White River Valley hydro basin as shown	Changes made as suggested.
NDOW 48	<b>(Page 4-7, Table 4-2)</b> Moapa dace – delete reference to occurrence in Spring Valley hydro basin #184, this refers to an old attempt to establish refuge population at Shoshone Ponds, no longer extant	Changes made as suggested.
NDOW 49	<b>(Page 4-7, Table 4-2)</b> Moapa speckled dace – delete California Wash, see comments for lines 5 & 12	Muddy River mainstem is included as part of California Wash.
NDOW 50	<b>(Page 4-7, Table 4-2)</b> Meadow Valley Wash speckled dace, add Eagle Valley, likely occurrence as part of contiguous flow system	Changes made as suggested.
UTAH 28	<b>(Page 4-7, Table 4-2, Fish)</b> Least Chub does occur in Snake Valley (UDWR natural heritage database) and Fish Springs Flat. Information on least chub was sent to ENTRIX in December.	Changes made as suggested.
UTAH 29	<b>(Page 4-7, Table 4-2, Fish)</b> Change name of Virgin River Spinedace to Virgin Spinedace.	Changes made as suggested.
UTAH 30	<b>(Page 4-7, Table 4-2, Amphibians)</b> Columbia Spotted Frogs do occur within the Tule Valley (UDWR natural heritage database).	Change was made.
UTAH 31	<b>(Page 4-7, Table 4-2, Amphibians)</b> Northern Leopard frog is present in Fish Springs Flat.	Change was made.
UATH 32	<b>(Page 4-8, Table 4-1, Deep Creek Valley)</b> Add rainbow trout (Granite Ranch).	Revision was made to Table 4-2 (Granite Creek).
UTAH 33	<b>(Page 4-7, Table 4-1, Bonytail)</b> Delete bonytail from Spring Valley basin--- does not occur	Change was made.
UTAH 34	<b>(Page 4-7, Table 4-1, Least Chub)</b> Add least chub occurrence in Snake Valley, Fish Springs Flat and Deep Creek Valley	Least Chub was added to Snake and Fish Springs flat. UDWR indicated that this species does not occur in Deep Creek Valley.
UTAH 35	<b>(Page 4-8, Table 4-2, Western toad)</b> No known populations of western toad in Snake Valley in Utah---Nevada?????	Change was made.
UTAH 36	<b>(Page 4-8, Table 4-2, Columbia Spotted Frog)</b> Occurs in Snake, Tule, and Deep Creek Valley's	Changes made as suggested.

**TABLE COMMENTS**

COMMENT #	COMMENTS	RESPONSE
FWS 16	<p><b>(Pages 4-7 thru 4-8, Table 4-2)</b> Again, Table 4-2 should be thoroughly reviewed by the consultants and BLM to verify that the distribution information is correct. We provide the following information for your consideration:</p> <ul style="list-style-type: none"> <li>▪ Are these tables meant to include historic as well as current distribution information? If so, BLM should be careful about making this distinction. For example, White River desert sucker is no longer found in Pahrnagat Valley, Big Springs Spinedace is extirpated from Panaca Valley; several species that were once held in Shoshone Ponds (Spring Valley) are no longer there (e.g., Moapa dace, bonytail).</li> <li>▪ Least chub are present in Snake Valley and, as of 2007, Fish Springs NWR (please refer to the Conservation Agreement and UDWR translocation info for 2007).</li> <li>▪ Virgin River spinedace is not known from White River Valley.</li> <li>▪ The federally endangered White River spinedace is completely absent from this table!</li> <li>▪ Virgin River chub should indicate “Muddy River population.”</li> <li>▪ Spotted frogs are present in Tule Valley (please refer to the Conservation Agreement for this species for distribution information).</li> <li>▪ Northern leopard frog distribution information is incomplete. It is found in several valleys in addition to Snake Valley, including but not necessarily limited to: Fish Springs Flat, Spring Valley, and Pahrnagat Valley.</li> <li>▪ Relict leopard frog should be added (present in Black Mountains Area; see comment above regarding adding this HB to the project study area.)</li> </ul>	<p>The occurrence information was updated based on additional input from NDOW, UDWR, and the BLM. Occurrence information from the Nevada and Utah Natural Heritage Programs that will be used in the analysis will include records that are up to 20 years old.</p>
NDOW 51	<p><b>(Page 4-8, Table 4-2)</b> Northern leopard frog, add Pahrnagat Valley, Steptoe Valley, Lake Valley, Spring Valley #184. Delete Snake Valley (no valid records at least within NV).</p>	<p>Changes made as suggested.</p>
GBNP 13	<p><b>(Page 4-8, Table 4-2)</b> Is <i>Pyrgulopsis kolobensis</i> not a special status aquatic species? They occur in two springs within the park in the Snake Creek watershed.</p>	<p>The occurrence of springsnails in the Snake Creek watershed springs was added to Table 4-3.</p>
FWS 17	<p><b>(Page 4-8, Table 4-2)</b> There are many species of springsnails that are not on the NV BLM sensitive species list but that are found in only a couple places in the Great Basin (e.g., Lake Valley pyrg, Flag pyrg, etc.). These species could be impacted throughout all or most of their range by this project. How will these species be addressed in this document and the EIS?</p>	<p>Springsnail occurrence data will be used map springs inhabited by this group of species within the region of study. The predicted groundwater drawdown area then will be compared to these springs to identify potential effects to these species.</p>

**TABLE COMMENTS**

COMMENT #	COMMENTS	RESPONSE
NPS 2	<p><b>(Page 4-8, Table 4-2)</b> The table 4-2 on page 4-8 lists special status amphibians. The list does not include the relict leopard frog, <i>Rana onca</i>. This species not only occurs within the Black Mountains Hydrographic Basin and Lake Mead NRA as mentioned above, significant potential relocation sites for this species has been identified along the Muddy River and Virgin River drainages, including areas within Lower Moapa Valley Basin which is including within the study area of the report. A multi-party Conservation Agreement encompassing areas within the states of Nevada, Utah and Arizona has been developed for this species.</p>	<p>This species was added to the table.</p>